

THE IMPACT OF PROFESSIONAL DEVELOPMENT ON TEACHER EFFICACY
SPECIFIC TO STRATEGIES FOR SUCCESS WITH ADHD STUDENTS IN
INCLUSIVE PRIVATE SCHOOL CLASSROOMS

by
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Abstract

Educating students with Attention Deficit Hyperactivity Disorder (ADHD) in inclusive settings is of emerging importance as private schools increasingly admit students with learning differences to whom they would have denied admission historically. In the United States, 10-12% of private school enrollment includes students with learning differences, but private schools are not legally bound to meet every child's needs. They are permitted to create their own internal policies for accommodating students; they are not bound by Free Appropriate Public Education (FAPE) or the Individuals with Disabilities Education Act (IDEA), the latter of which outlines that students who attend private schools are not entitled to receive all of the services guaranteed them in a public school. Progressively lenient admissions requirements are a necessity for private schools with declining enrollment, yet research shows that classroom teachers in private schools have not received appropriate levels of support regarding how to work effectively with students with learning differences like ADHD.

Guided by the characteristics of successful PD that emerged from the literature, this study measured the effect of a seven month job-embedded PD program on the efficacy of teachers instructing elementary students with ADHD in inclusive private school classrooms. Pre- and post-treatment scores were obtained from respondents on the Teacher Self Efficacy Scales (TSES) and a modified version of the Ashton Vignettes. On both instruments, there were statistically significant improvements on post-treatment scales indicating that the PD program was successful. While limitations of the study are its small sample size and lack of gender and racial diversity, the effect of the PD program was significant enough to warrant additional research with a larger and more diverse

sample. Additional information about the transferability of the program to similar private school settings will also be important.

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CHAPTER ONE

Executive Summary

Educating students with Attention Deficit Hyperactivity Disorder (ADHD) in inclusive settings is of emerging importance as private schools increasingly admit students with learning differences to whom they would have denied admission historically (De Boer, Pijl & Minnaert, 2011; Vantine, 2008). In the United States, 10-12% of private school enrollment includes students with learning differences (Wasserman, 2009). Yet, research shows that classroom teachers in private schools have not received appropriate levels of guidance regarding how to work effectively with students with learning differences like ADHD (Eva & Walker, 2010; Taylor, 2005).

Progressively lenient admissions requirements are a necessity for private schools with declining enrollment (Kohn, 2012). As a result, they are accepting more students with learning differences, but private schools are not legally bound to meet every child's needs (Bello, 2006). Little research exists regarding private schools' special education services (Jordan, Schwartz, & McGhie-Richmond, 2009; Taylor, 2005). Many private schools have not trained their teachers, altered their curriculum, nor put scaffolding in place to ensure student success (Eva & Walker, 2010).

Private schools are permitted to create their own internal policies for accommodating students; they are not bound by Free Appropriate Public Education (FAPE) or the Individuals with Disabilities Education Act (IDEA), the latter of which outlines that students who attend private schools are not entitled to receive all of the services guaranteed them in a public school (Russo, Osborne, Massucci, & Cattaro, 2011). Though not legally bound to accept or serve students with learning differences,

private schools do attempt to satisfy the educational needs of these students to maintain ‘market accountability’ (Kallemeyn, 2009).

The education of the heterogeneous and increasingly diverse group of students in private school classrooms today is largely the responsibility of the inclusive classroom teachers (Eva & Walker, 2010; McGhie-Richmond et al., 2007; Raggi & Chronis, 2006). Bello (2006) confirmed the majority of private schools are accepting students with learning differences, yet lack a formalized system to support these students.

Using a Social Constructivism lens as the theoretical framework, collaboration is especially important in an inclusive classroom because students without a learning difference can model higher level thinking (Grskovic & Trzcinka, 2011). Teachers who co-construct knowledge via dialogical interaction, rather than transmitting the knowledge to pupils, are more effective because instruction can be adjusted accordingly which helps teachers meet students’ needs across a range of ability (McGhie-Richmond, Underwood & Jordan, 2007). Most private school teachers do not employ dialogical interactions when serving students with learning differences. Pedagogical issues that arise from educating children with ADHD in private schools need to be addressed and resolved (Russo et al., 2011).

Needs Assessment

Apex Academy is Cincinnati’s only Independent Catholic school, but enrollment in their Lower School, which includes grades 1-4, is on a steady decline. The supply of private schools in Cincinnati is greater than the demand because the market is over-saturated with private school options; additionally the city has an aging population and a declining birthrate so there are less potential pupils (Davidson et al., 2014). To sustain

operation, Apex Academy altered admissions requirements to admit students with learning differences, yet all classrooms at Apex Academy are ‘inclusive’ and there are no intervention specialists or special education programs.

A needs assessment was completed to determine what gaps in PD existed that prevented Apex Academy’s Lower School faculty from teaching students with learning differences effectively and identify the resources necessary for effective inclusive classrooms. Participants completed a survey comprised of multiple choice and short answer responses; both qualitative and quantitative data were collected. The needs assessment confirmed the problem evident in the literature including teachers’ lack of knowledge and low levels of confidence in their abilities to serve students with learning differences. Results establish a gap in PD existed and a program should be implemented for Lower School teachers to feel equipped to effectively address the needs of all students.

Intervention Study

A Professional Development (PD) intervention was crafted specifically as a solution to address the concerns relayed by the teachers on the needs assessment to ensure the learning they receive would be meaningful and directed-towards a common goal (Van den Bergh, Ros & Beijaard, 2014). The purpose of the intervention is to investigate the extent to which a job-embedded PD program about effective strategies for working with private school elementary students who have ADHD improves inclusive classroom teachers’ sense of efficacy.

Effective Professional Development is a Powerful Tool for Educators

A positive correlation exists between pupils' performance and when a teacher last participated in PD which is of critical importance given that forty percent of variation in student achievement can be correlated to teachers' expertise (Stronge, 2007).

Characteristics of successful PD emerged from the literature and guided the intervention: structure of the PD, increased efficacy as a result of training, allotted time for PD, duration of the program, and the importance of collaboration.

A comprehensive job-embedded PD program during monthly faculty meetings in the Apex Academy Lower School started in September 2015 and will end in March 2016. In order to determine the effect of a seven month job-embedded monthly PD program on the efficacy of teachers instructing elementary students with ADHD in inclusive private school classrooms, pre and post treatment Teacher Self Efficacy Scales (TSES) and modified Ashton Vignettes were collected.

Outcomes

Results of the paired-sample t-test showed the mean efficacy score differs before participating in the PD program ($M = 83.2$, $SD = 8.42$) and after completion of the PD program ($M = 88.7$, $SD = 5.34$) at the .05 level of significance ($t = -3.39$, $df = 20$, $n = 21$, $p < .05$, 95% CI for mean difference -8.93 to -2.13). Results show a statistically significant difference in the mean efficacy ratings on the TSES before and after participation in the PD program. Efficacy appears to increase an average of 5.5 points following completion of the intervention.

Results of the paired-sample t-test on the Ashton Vignettes show the mean efficacy score differs before participating in the PD program ($M = 25.1$, $SD = 3.28$) and

after completion of the PD program ($M = 27.0$, $SD = 2.32$) at the .05 level of significance ($t = -2.85$, $df = 20$, $n = 21$, $p < .05$, 95% CI for mean difference -3.29 to -.051). Results show a statistically significant difference in the mean efficacy ratings on the Ashton Vignettes before and after participation in the PD program. Efficacy appears to increase an average of 1.9 points following completion of the intervention.

Limitations of the study are its small sample size and its lack of gender and racial diversity.

Recommendations

Further research with a larger sample size would be needed to confirm the effectiveness of this PD program on the efficacy of private school teachers in regards to meeting needs of students with learning differences, like ADHD. It may offer support for a state-level change to the PD required every five years for Ohio private school teachers' license renewal. With the increased need for private school teacher preparedness, these potential findings might provide some baseline evidence for the Ohio Department of Education to designate a small percentage of the CEUs required every five years for license renewal to be devoted specifically to the topic of effectively educating private school students with learning differences.

CHAPTER TWO

Problem of Practice

As shifting demographics in schools result in challenges to the status quo, the process of responding to diverse learner needs is altering the teaching profession (Philpott, Furey & Penney, 2010). Educating students with Attention Deficit Hyperactivity Disorder (ADHD) in inclusive settings is of emerging importance in recent years as private schools increasingly admit students with learning differences to whom they would have denied admission historically (De Boer, Pijl & Minnaert, 2011; Vantine, 2008). Private schools were traditionally viewed as exclusionary because the college preparatory curriculum was not appropriate for every student and, in contrast to public schools, private schools are not legally bound to meet every child's needs (Bello, 2006). To remain competitive, however, private schools responded to the shifting educational climate by accepting a more heterogeneous population of students, including many with learning differences (Bello, 2006). Consequently, private school teachers in inclusive classrooms are responsible for the education of typically-achieving students and those with learning differences such as ADHD (Jordan, Schwartz, & McGhie-Richmond, 2009).

Little research exists regarding provisions for inclusive special education services in private schools (Taylor, 2005). Limited resources, limited knowledge, and limited time are institutional barriers that result in a lack of teacher preparation and hinder implementation of programs broad enough to support all students (Bello, 2006). Well-prepared teachers, however, have a stronger effect on gains in student learning than those who are underprepared (Stronge, 2007). Pedagogical issues that arise from educating

children with ADHD in private schools need to be addressed and resolved (Russo, Osborne, Massucci, & Cattaro, 2011). Additionally, the type and quality of special education services offered in private schools needs further exploration and clarification (Taylor, 2005). This information may offer solutions to increase the likelihood of improved efficacy for inclusive classroom teachers who serve academically and behaviorally diverse private school students.

Background

The Apex Academy is the Cincinnati region's only Independent Catholic school. Due to the setting of the needs assessment and intervention, research on both Catholic and Independent schools is included under the umbrella-term "private" for the purpose of this document. As a private school branded both Catholic and Independent some clarity regarding the definitions of each label is warranted. According to the Archdiocese of Cincinnati Catholic Schools Office, private Catholic elementary schools are recognized by the Archbishop, but directed by a private Board of Trustees who defines governs the school. The Catholic Schools Office provides support and advice for the school leadership (The Archdiocese of Cincinnati Catholic Schools, 2013). Independent schools, as defined by the Independent Schools Association of Central States of which Apex is a member, are organized with sufficient independence from other organizations to ensure its ability to control its own destiny. Independent schools may have ties to other organizations, such as the Archdiocese, but are still considered independent if they exhibit particular characteristics such as an administration free to design its curriculum and admit students whom the school determines it can best serve (ISACS, 2013).

ADHD Students in Inclusive Classrooms

In the United States, private school enrollment approaches five million students of which roughly 10-12% have special learning needs (Wasserman, 2009). One of the most common learning differences in schools currently is ADHD; affecting 5% to 7% of children worldwide. It is the most common reason for a referral to psychiatric services (Antshel & Barkley, 2008; Jitendra, DuPaul, Someki, & Tresco, 2008). Even if a student is receiving special education services for an ADHD diagnosis, these students are most commonly placed in general education classrooms (Jitendra et al., 2008; DuPaul, Eckert & Vilardo, 2012).

Bello (2006) confirmed the majority of private schools are now accepting students with learning differences, yet they lack a formalized system to support these students. Furthermore, no framework exists to establish effective inclusive practices and private schools' services vary widely. Support services are often inconsistent and without evaluation. This is due to limited financial resources and no authority to govern inclusion efforts. Attempts to offer direct service support to students led to the employment of learning specialists in the late 1990s, however, this role cannot provide the level of scaffolding needed presently in private schools (Vantine, 2008).

The education of the heterogeneous and increasingly diverse group of students in classrooms today is largely the responsibility of the inclusive classroom teacher (Eva & Walker, 2010; McGhie-Richmond, Underwood & Jordan, 2007; Raggi & Chronis, 2006). Inclusive classrooms, also known as general education classrooms, are defined as those that include full-time placement of students with learning differences alongside typically-

developing peers, with all students participating in the same activities and routines (Leatherman, 2007). Although it may be a challenge for inclusive classroom teachers to implement academic and behavioral interventions, if a teacher is well-prepared, both types of intervention can successfully be applied to students with ADHD in the general education classroom. The resulting effects are similar to those seen when applied in a special education classroom (DuPaul et al., 2012). Nevertheless, research shows that classroom teachers in private schools have not received appropriate levels of guidance regarding how to work effectively with students with learning differences (Eva & Walker, 2010; Russo et al., 2011; Taylor, 2005).

The challenge for private school teachers is that they are expected to simultaneously maintain academic rigor while responding to each student's individual needs (Grskovic & Trzcinka, 2011; McGhie-Richmond et al., 2007). Many private schools have not trained their teachers, altered their curriculum, nor put scaffolding in place to ensure that both teachers and students succeed in inclusive classrooms (Eva & Walker, 2010). Reinforcing the confines of traditional pedagogy about learning differences makes it difficult to expand the definition of learning and increase efficacy (Cook-Sather, 2003). ADHD is largely considered a chronic disorder and should be handled with the same professionalism by educators as when teachers have students with other chronic medical disorders (Antshel & Barkley, 2008). While much is known about the symptoms and manifestations of ADHD, research about management of its symptoms is ongoing.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) is used by clinicians to determine if a patient's

symptomology aligns enough with the criteria for an ADHD diagnosis to warrant the identification of the disorder. Based on the person's symptoms, three types of ADHD can occur: Predominantly Inattentive, Predominantly Hyperactive-Impulsive, or Combined Presentation which is a mix of the inattentive and hyperactive-impulsive symptoms. Some of the diagnostic criteria for Inattentive type includes: trouble organizing tasks and activities, reluctance to do tasks that require sustained mental effort, loss of items necessary for tasks, and forgetfulness. Hyperactive-Impulsive symptoms may include: fidgeting, leaving one's seat in situations when remaining seated is expected, acting as if "driven by a motor," trouble waiting his/her turn, and interrupting others (American Psychiatric Association, 2013). Regardless of type, it is easy to understand why presentations of these symptoms would be problematic in an inclusive classroom setting.

Many students with ADHD can perform at or above grade level and, in some cases, ADHD co-occurs with giftedness (National Joint Committee on Learning Disabilities, 2011). Even so, an ADHD diagnosis may mean chronic and pervasive difficulties with inattention or hyperactivity exist. This often leads to profound academic and social impairments (Chronis, Jones & Raggi, 2006). ADHD can prevent achievement and disguise true intellectual abilities (Trout, Lienemann, Reid & Epstein, 2007). Students with ADHD may be of average or above-average intelligence, but deficits in memory and attention affect their ability to acquire knowledge (Impecoven-Lind & Foegen, 2010). The academic achievement of students with ADHD is approximately .71SD below peers without a diagnosis (DuPaul et al., 2012).

Up to 80% of children with an ADHD diagnosis will exhibit problems in school performance. Academic problems, including lower grades and poorer standardized test scores, along with social concerns, such as alienating peers and teachers, are more commonly experienced by students with ADHD than by those without the diagnosis (Bussing, et al., 2014; Trout et al., 2007). Within the realm of ADHD, inattentive symptoms lead to impairments different than hyperactive impulsive symptoms. Regardless, either type may lead to academic challenges and are closely connected to social-behavioral struggles that can amplify academic roadblocks and increase classroom tension (Chronis, Jones & Raggi, 2006).

An ADHD diagnosis impairs working memory, ability to perform certain skills, and one's motivation to persist at tasks (Antshel & Barkley, 2008). Deficits in cognitive processes and insufficient mastery are evident challenges to students with ADHD; learning and processing information are not possible without the ability to attend (Impecoven-Lind & Foegen, 2010). Students with ADHD typically take longer to complete timed tasks than their peers without a learning difference; it is one of the most common ways ADHD can affect student performance (Ofiesh, Hughes & Scott, 2004). However, a teacher with appropriate training can ameliorate many of these problems to some degree.

A teacher's effectiveness is strongly correlated to the preparation received and to a teacher's sense of efficacy (Stronge, 2007), thus a mismatch between students' needs and a teacher's competency is a problem. Students of effective teachers evidenced greater achievement, including better performance on standardized tests. Teacher efficacy is defined as a teacher's "judgment of his or her capabilities to bring about

desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated” (Tschannen-Moran & Hoy, 2001, p. 783). Teacher efficacy is also correlated to students’ own sense of efficacy and student motivation. Effective teachers are more likely to persist with struggling students and will criticize less after incorrect student answers. They are less likely to refer students for special education as teachers with high efficacy tend to experiment with methods of instruction, seek improved teaching methods, and experiment with instructional materials (Tschannen-Moran & Hoy, 2001).

Evolution of School Support

Though progress may be slower in private schools than in public schools, overall, Tyack & Cuban (1995) believe school programs for children with learning differences have shown great advancement. Historically, special education was intended to isolate students with special needs from the mainstream student population and most programs were designed to meet the needs of the school, not those of the students and families. Improvement was evident in the last century as noted by the increase in students receiving support at school. School support services increased from less than 1% of students served in the 1930s to 10% of children with special needs supported by federally funded programs by the 1970s. Though progress is positive, labeling and tracking which negatively influence the education experience of students with learning differences still exist (Olson, 2008). Research on consequences of including students with learning differences in private schools is rare; more information is needed about the impact of inclusive classrooms on student performance and how private schools plan to accommodate students with ADHD (Taylor, 2005).

Literature Terminology Defined

For the purpose of this study, several key terms must be defined from a broad to narrow understanding. ‘Inclusion’ refers to children with learning differences who are educated in regular classrooms but provided with support services (De Boer et al., 2011). Though the focus of this research is on students with ADHD as their learning difference, ‘learning differences’ is a general term that also encompasses math and reading disorders, oral and written expression disorders, as well as other behavioral, emotional, and physical limitations that can inhibit learning (Pickering, 2003). Learning differences vary by individual and can manifest differently depending upon tasks and expectations (National Joint Committee on Learning Disabilities, 2011). For the purposes of the literature, learning differences will be considered synonymous to ‘learning disabled’ and under the umbrella of the term ‘special needs’ which were terms used historically.

Contextual Framework

Private schools are permitted to create their own internal policies for accommodating students with ADHD (Vantine, 2008). This stems from the autonomy granted to private schools when compared to public schools that accept federal and state funding. The incorporation of students with ADHD has been gradual because private schools must create new business via increased enrollment without making changes that alienate current customers. To justify tuition costs to parents, private schools differentiate themselves from local public schools including charter schools. Accordingly, private schools experience pressure to maintain their prestigious academic identities while simultaneously embracing the needs of their students with ADHD (Avramidis, 2005). One apprehension is that parents of traditional students

believe mainstreaming children with attentional limitations diminishes their own child's opportunities (Taylor, 2005). These fears, however, are unfounded as academic integrity can be maintained while also meeting the needs of students with ADHD (Shippen et al., 2011; Vantine, 2008). In light of these findings, private schools should consider the potentially positive effects of increased diversity on the issue of market accountability.

From Exclusivity to Diversity

Though a prestige factor exists with some private schools wherein an institution's desirability increases as selectivity increases, progressively lenient admissions requirements are a necessity for private schools with declining enrollment (Kohn, 2012). In the 1960s, there were 5.2 million private Catholic school students in the United States, but by 2013, enrollment was 2.0 million pupils. The number of students attending a Catholic school has fallen nearly 22% since 2003 (NCEA, 2013). The National Association of Independent Schools also recorded a decrease in enrollment of approximately 38,000 pupils in the last ten years (NAIS, 2015). Even as national enrollment numbers continue to decline in Catholic and Independent schools, the cost of a private school education continues to increase. Average Catholic elementary school tuition climbed 69% over the past ten years while elementary tuition at Independent schools has almost doubled since 2001 (NAIS, 2015; NCEA, 2013).

Private schools that desire to diminish the presumption of exclusivity by diversifying their student body exist. Across the nation they are enrolling a broader spectrum of students as a result of diversity initiatives and commitment to financial aid (Vantine, 2008; Eva & Walker 2010). Subsequently, there is an increase of students with ADHD offered admission. Though not legally bound to accept or serve students with learning differences, private schools do attempt to satisfy the educational needs of all

their students. As a result, administrators encounter the challenge of funding the services necessary for those with learning differences (Russo et al., 2011).

Market Accountability

Private schools are not required to meet regulations under No Child Left Behind, thus they do not experience consequences from the state or federal level for their performance. Private schools are not bound by Free Appropriate Public Education (FAPE) or the Individuals with Disabilities Education Act (IDEA), the latter of which outlines that students who attend private schools are not entitled to receive all of the services guaranteed them in a public school (Russo et al., 2011). In consideration of this, it may seem unclear who holds these schools accountable when it comes to appropriately educating students with ADHD (Wasserman, 2009). Though these schools may lack federal accountability standards, ‘market accountability’ is a major means of accountability (Kallemeyn, 2009).

In regards to the basic economics of supply-and-demand, it is noteworthy that the supply of private schools is greater than the demand in Cincinnati. The Cincinnati Archdiocese operates the nation’s seventh-largest Catholic school system with more than 42,800 students at 114 schools in 19 counties (The Alliance for Catholic Urban Education, 2013). As a comparison, Columbus, the nearest large city to Cincinnati, has less than half the number of schools (OCSDC, 2013). According to 2014’s *Hamilton County Maternal and Child Health Assessment*, Hamilton County experienced a slow decline in population with a decrease of 5.1% between 2000 and 2010. Of this decrease, the largest percent was in the under eighteen age group with a loss of 13.1%. The implications of an aging population paired with a 2.9% decrease in birthrate during the

last twenty years results in less potential students for Cincinnati private schools. These conditions amplify the importance of illustrating the value of a private school education to parents (Kallemeyn, 2009).

Moreover, on the topic of market accountability, over-supply and under-demand for local private schools could result in overall stronger schools because families have multiple options in education. To stay viable in a market of this type, schools need to stand out from competition by improving their standards of quality. Advocates of choice in education argue that freedom not only diversifies scholastic opportunities but also incentivizes the improvement of schools by increasing competition (Berends, Goldring, Stein & Cravens, 2010). Without competition, there is no incentive for administrators to pursue objectives that maximize the quality of education (Hanushek & Rivkin, 2010). Students with learning differences may ultimately benefit from the diversified scholastic opportunities that incentivize improvement in an over-saturated private school market like that of Cincinnati, Ohio.

Theoretical Framework

The problem facing private schools with respect to the need to serve a more heterogeneous population may be viewed from multiple perspectives. The theoretical constructs selected for this purpose were Cognitivism and Social Constructivism. While applicable to all students generally, both constructs were selected for their ease of applicability to students with learning differences like ADHD. Additionally, Bandura's social cognitive theory informed his construct of self-efficacy which is an important aspect of a teacher's success in educating students with learning differences (Tschannen-Moran & Hoy, 2001).

Cognitivism

According to Byrnes (2007), three themes emerge from the theories of cognitive development and learning: practice is important, learning should be meaningful and goal-directed, and a learner's prior knowledge affects what is learned. Educators must take in to account students' backgrounds, how they learn, and how they were taught previously, because all of these factors contribute to who they are in the classroom. Human complexity is why a 'one size fits all' approach to education is a fallacy (Phillips, 2006). From a cognitive perspective, the way people organize their memories is directly linked to their experiences, thus, optimal learning occurs when information is presented in a personally-relatable context (Alexander, Schallert, & Reynolds, 2009). When teachers abide this, it also increases the likelihood of sustained attention for those with an ADHD diagnosis. Knowledge, strategies and expertise are contextual, thus helping students combine new information and make connections to existing knowledge is fundamental. This is of particular importance to students whose working memory and retention are hindered by their ADHD diagnosis; as the number of connections increase so does the ease in retrieving the information and applying it which benefits all students' learning (Bruning, Shaw & Norby, 2011).

Metacognitive experiences are a result of situations that stimulate highly conscious thinking. Metacognition is important to memory and retention because how information is encoded effects the ease with which one can recall and then apply it. Students with ADHD often experience metacognitive difficulties that make following a sequence of multi-step directions particularly challenging (Impecoven-Lind & Foegen, 2010). In the classroom, when a teacher helps students develop connections to

experiences, their learning can increase. Rote instruction will not result in conceptual knowledge; it can only be attained with reflective learning (Impecoven-Lind & Foegen, 2010). Teachers who focus on conceptual understandings instead of specific fact recall assist their students in connecting ideas and concepts across disciplines (Mann, 2006).

Extended practice is needed to develop cognitive skills that successfully emphasize mental processes at a higher level, such as problem solving and critical thinking, but educators must be aware that development of these skills may be inhibited by the shorter attention span and lower frustration tolerance common in children with ADHD (Bruning et al., 2011). Student self-reflection on skill development is an important aspect of deep learning. Self-regulation is critical to cognitive growth but can be difficult for children with ADHD. Self-monitoring and self-reinforcement are promising non-medication interventions teachers can use for these students and peers without learning differences (Trout et al., 2007).

Social Constructivism

Social interaction as it applies to cognitive development is fundamental (Bruning et al. 2011). Students who learn how to resolve points of conflict in a group and reach a consensus have opportunities to construct knowledge from these experiences (Thornton, Langrall & Jones, 1997). Collaboration is especially important in an inclusive classroom because students without a learning difference can model higher level thinking for students with ADHD who may be less articulate (Grskovic & Trzcinka, 2011). If this type of exposure is repeatedly experienced, students with specific limitations will begin to exhibit higher levels of independent thinking (Thornton et al., 1997).

Teacher-student interactions are an important part of this theoretical perspective. For learning to occur, teachers must know the students' fields of experience, their perceptions, and the conceptual understanding they possess before planning a lesson (Von Glaserfeld, 2005; Weber, Johnson & Tripp, 2013). Teachers who co-construct knowledge with their students via dialogical interaction, rather than simply transmitting the knowledge to pupils, are more effective. Student responses during a dialogue allow instruction to be adjusted accordingly which may help teachers meet students' needs across a range of ability (McGhie-Richmond et al., 2007). Inquiry-based approaches to instruction are equally beneficial to students with ADHD and those without the diagnosis (Eva & Walker, 2010).

Moving beyond label-imposing data-driven instruction and challenging students with information just outside of their grasp is of great benefit to their learning (Vygotsky, 1978). Ongoing education of teachers is important because even those with the best intentions can stunt progress, rather than promote it, when they are misinformed or under-informed. Though intending to employ a positive strengths-based approach, teachers who focused only on concrete thinking of children with learning differences found it suppressed abstract thought (Vygotsky, 1978). Higher order thinking skills are developed through student-centered instruction that deepens understanding, not direct instruction with rote exercises that dull creativity (McGhie-Richmond et al., 2007).

Under-Prepared Teachers Cannot Meet the Needs of Students with ADHD

While percentages of students with ADHD in general education increase, teachers continue to report feeling unprepared to teach them (Grskovic & Trzcinka, 2011; Philpott et al., 2010). Their lack of teaching efficacy in this domain needs to be addressed.

Teachers do not feel competent about teaching students with ADHD because they fail to perceive themselves as knowledgeable in this area, thus the confidence in their skills is diminished (De Boer et al., 2011; Philpott et al., 2010). Under-prepared educators need skills, knowledge, and confidence to implement positive changes that address this gap effectively and consistently (Bello, 2006; Leatherman, 2007). Resources to support teachers are limited, yet knowledge of research-supported strategies with proven effectiveness are necessary. Good strategies need to be adapted to ensure implementation is beneficial for average students as well as those with challenges. (McClanahan, 2008). Well-designed school-based interventions may be the best first-line treatment for students with ADHD because of their moderate to large effects on academics and behavior (DuPaul et al., 2012).

Teachers are expected to educate diverse learners because they are the primary instructional providers for students with ADHD (Grskovic & Trzcinka, 2011). The growing demand for academic accommodations can be a source of frustration and confusion for teachers at private schools (Vantine, 2008). Whether inclusion is successful or not could be tied to teachers' beliefs about who is primarily responsible for educating students with ADHD. Adjusting their own views on teaching may be required before a change in their beliefs can occur. Understanding and accepting it is the responsibility of the classroom teacher may increase likelihood that effective instructional techniques will be developed (Jordan et al., 2009). Teachers may unwittingly narrow their approach to teaching by matching their own personal learning preferences to their instruction which limits the range of students served (Eva & Walker, 2010). Increasing educators' knowledge of ADHD increases understanding that students who may appear

disorganized or lazy are actually inconsistent with attention and effort exerted (Olson, 2008). A teacher's increased knowledge regarding specific learning differences, like ADHD, leads to better attitudes about inclusion for students with that diagnosis (De Boer et al., 2011).

Educators benefit from acquiring skills that enable them to identify the obstacles students with ADHD face (Olson, 2008). Teacher's knowledge regarding implementation of research-based accommodations is one of the largest barriers to inclusion, but school climate improves when teachers become empowered stakeholders (Herner-Patnode, 2009). More extensive teacher training and experience within inclusive classrooms leads to more positive teacher attitudes (De Boer et al., 2011). Replacing old beliefs with new ones can result in systemic change because educators' behaviors and actions have the capacity to affect student achievement (Helsing et al., 2008).

Challenges Faced by Students with ADHD

Students with learning differences will often focus on their weaknesses instead of strengths they can employ to succeed (Mann, 2006). This misdirection may lead to negative perceptions about themselves as students and deflating feelings about school overall. Students with ADHD feel more disconnected to school than their typically-achieving peers. Poor social relationships are a frequent concern for students with ADHD because the diagnosis can affect a student's social standing resulting in fewer friendships and less peer acceptance (De Boer et al., 2011). Schools have the power to shape self-concept and determine how students view themselves and their abilities. Students with learning differences need teachers that understand a student's persistence,

self-discipline, and ambition can positively influence one's academic success (Olson, 2008).

Inclusive Classroom Teachers Need Additional Support to be Effective

Classroom strategies and interventions are imperative for teachers to effectively address the needs of the increasing number of students with ADHD in inclusive classrooms (Impecoven-Lind & Foegen, 2010; Jitendra et al., 2008). To effectively manage a classroom, teachers must be thoroughly prepared with strategies to sustain student engagement. There is more non-productive time for students with ADHD when compared to those students who can attend and self-direct (Pickering, 2003; Stronge, 2007). This is of long-term importance as working with students with learning challenges was associated with lower job satisfaction when compared to teachers who worked with gifted students. Interactive PD that incorporates teachers' experience and attitudes stimulate creativity while helping educators maintain enthusiasm for their role (Stempien & Loeb, 2002). Nonetheless, even teachers who support the philosophy behind inclusive education may not be willing or able to make accommodations for students with ADHD in their classrooms (De Boer et al., 2011). To attain a school environment that is more accepting of students with learning differences, there needs to be a systems change (Taylor, 2005). Promoting advantages of academic diversity, establishing integrated support systems, and de-stigmatizing learning differences result in a shift that, ultimately, enriches the entire school (Vantine, 2008; Weber et al., 2013).

Teachers desire effective ways to promote the success of students with ADHD in inclusive classrooms, but strategies cannot be implemented effectively if teachers lack the necessary skills and competencies to serve this student population (Bello, 2006). As

enrollment of students with ADHD in Cincinnati's private schools increases, inclusive classroom teachers face the challenge of differentiating instruction for students who vary significantly on the spectrum of academic ability; consequently, teachers need additional training to be successful in this area. While establishing clear procedures for serving students with ADHD would be helpful, it is also important that teachers receive professional development support to help them meet diverse learners' needs (Vantine, 2008).

CHAPTER THREE

Evidence of Problem via Needs Assessment

A needs assessment was conducted to ascertain if professional development deficiencies, in regards to effective instructional strategies for inclusive classroom teachers of students with ADHD, exist at a private Catholic Independent school in Cincinnati.

Context of Study

Private schools increasingly admit students with learning differences to whom they would have historically denied admission. As a result, classroom teachers are faced with the challenge of differentiating instruction for students who are grade levels apart in ability. Teachers expressed concern in the needs assessment about inadequate professional development opportunities that enrich teaching skills and ensure students with ADHD succeed in inclusive classrooms. A full assessment of existing and missing components in professional development, as it pertains to students with ADHD in inclusive classrooms, enabled stakeholders to understand what improvements must be made.

Although the National Catholic Education Association's statistics show declines in enrollment as a general trend nationally, that is not the case in Cincinnati. Ohio is unique because non-public schools are offered more public funding than in any other states (O'Neil, 2004). This may account for the over-saturated private school market in Cincinnati versus cities elsewhere. The Ohio Department of Education (ODE) classifies Apex Academy as a chartered nonpublic school which is "a private school that holds a valid charter issued by the state board of education and maintains compliance with the

Operating Standards for Ohio's Schools (Ohio Administrative Code 3301-35-12). These schools are not supported by local or state tax dollars and require the family to pay tuition” (ODE, 2015). Chartered non-public schools are eligible for the Auxiliary Services Program that enables payments to be made on a per pupil basis to the public school district where the non-public school is located. The public school district for Apex Academy is Cincinnati Public Schools (CPS). CPS, upon request from Apex Academy, provides textbooks and educational equipment as well as diagnostic, therapeutic, and remedial personnel services. The ODE’s Non-Public Administrative Cost Reimbursement Report from April 2015 shows a Year-to-Date reimbursement of \$290, 880. (ODE, 2015)

Apex Academy enrollment numbers in grades 1-4 are on a steady decline. To sustain operation and stabilize fluctuations in enrollment figures, Apex Academy altered admissions requirements. However, it is worth noting that in response to failing public schools, the eight urban Catholic elementary schools enrollment defied national trends and increased (The Alliance for Catholic Urban Education, 2013). Unlike its more urban counterparts, this is not the case for several suburban Catholic schools in Cincinnati.

Stakeholders

Initial stakeholders at Apex Academy are: Lower School teachers, Division Directors, the Admissions Department, and the Head of School. All Lower School students within an inclusive classroom setting will benefit from improved differentiation which will positively influence parent community.

Ethnic diversity at Apex is currently 24% of students with minority status; international families from more than 30 countries worldwide are also represented

(SCDS, 2014). Additionally, through their International Student Program, Apex Academy has an enrollment of 20-30 international Upper School students, who live with host families in the Apex community. These students are an important part of their commitment to global diversity. Another example of increased diversity is that the historically Catholic institution welcomes all faiths. Current enrollment is only 67% Catholic with the remaining 33% of families representing other religions (SCDS, 2014).

Apex Academy is making efforts to diversify their student body not only by ethnic cultures, religious affiliations and nationalities, but also from an economic perspective. In response to the increasing cost of financing a private school education, Apex launched an affordability initiative starting in the 2014-15 school year. Inspired by the school's mission and intended for families in K-8, a family financial support plan was designed for parents concerned about the cost of applying to and attending an independent school. The increase in available scholarships and financial aid opportunities reduced the pressure on the Admissions Department to seek 'full-pay' families and led to greater heterogeneity among our students.

Research Questions

Table 1: Cross walk of Research Questions and Plan for Data Acquisition Methods

Research Questions	Data Collection Method
RQ1: What gaps in skills, competencies, and professional development exist that may hinder faculty from being equipped to effectively instruct the influx of students with learning differences that are enrolling at a higher rate than ever before in this school?	Survey completed by Director of the Lower School, classroom teachers, academic coaches, counselors, school psychologist and resource teachers
RQ2: What roles does professional development play in providing instructional strategies to teachers for differentiation in inclusive classrooms?	Survey completed by Director of the Lower School, classroom teachers, academic coaches, counselors, school psychologist and resource teachers

RQ3: What are the resources necessary for faculty to help serve their students with learning differences in an inclusive classroom setting?	Survey completed by Director of the Lower School, classroom teachers, academic coaches, counselors, school psychologist and resource teachers
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Methodology

Description of Setting

Apex Academy is a private Catholic Independent school serving students in grades K-12 in Cincinnati, Ohio. Apex's mission is based on five pillars: Academic, Spiritual, Artistic, Physical, and Social. Apex Academy is an independent, Catholic, coeducational, college-preparatory school, founded in 1890. The campus sits on 24 acres in an affluent suburb of Cincinnati. Apex is very proud of their character education program through which students 'have a multitude of opportunities to learn critically important lessons that help shape their moral compass' (SCDS, 2014).

The Apex campus has 136 faculty/staff and one priest. The school is divided into four divisions: Montessori Kindergarten, Lower School (grades 1-4), Middle School (grades 5-8), and Upper School (grades 9-12). All classrooms at Apex Academy are 'inclusive' and while there are no intervention specialists for students who transfer from previous schools with existing Individualized Education Plans or 504 plans, there is a level of support in place in the Lower School via math and literacy remediation groups.

Survey Participants

Participation of the study was limited to Lower School employees at Apex Academy. For the purpose of this needs assessment, surveys were completed by classroom teachers, academic coaches, counselors, school psychologist and resource teachers. Ninety-one percent of respondents were female and 9% were male. Forty-six percent of respondents have a role that requires them to span multiple grade levels, such

as a specialties teacher or math coach. The remaining respondents are affiliated with a specific grade level: 14% at first grade, 9% at second grade, 11% at third grade, and 20% at fourth grade. Table 2 illustrates the extensive experience of the survey respondents with 74% in the field of education for over a decade and 48% in the field for over twenty years thus correlating with the average school-wide faculty tenure of twenty years (SDCS, 2015). Faculty turnover, with the exception of retirement, is rare. Fifty-two percent of respondents have been employed by Apex for more than ten years.

Table 2: Demographic Characteristics of Survey Respondents

Characteristic	n	%
Gender		
Male	3	9%
Female	32	91%
Years in Education		
1-3 years	2	6%
4-6 years	4	11%
7-10 years	3	9%
Over 10 years	8	26%
Over 20 years	17	48%
Years at Apex Academy		
1-3 years	8	23%
4-6 years	3	9%
7-10 years	5	14%
Over 10 years	8	23%
Over 20 years	10	28%
Did Not Respond	1	3%
Faculty Role		
Grade 1	5	14%
Grade 2	3	9%
Grade 3	4	11%
Grade 4	7	20%
Specialty Teacher, Coach, Counselor, other	16	46%

The Ohio Department of Education (ODE) classifies Apex Academy, a Catholic Independent school, as a chartered nonpublic school. As such, teachers are required every five years by the ODE to complete six semester hours of coursework related to classroom teaching and/or the area of licensure or 18 continuing education units, equivalent to 180 contact hours. Other equivalent activities approved by the Local Professional Development Committee (LPDC) may be combined with coursework and CEUs to meet this requirement. Additionally, each educator is responsible for a PD plan aligned with the ODE's professional educator standards and based on the individual needs of the educator, students, and school (ODE, 2015).

Data Collection Methods

A survey was designed to assess needs that may exist in professional development specific to teaching students with learning differences, like ADHD, in inclusive private school classrooms. The survey was predominately comprised of multiple choice items as well as several short answer responses in which teachers could expound upon their opinions. Thus, both qualitative and quantitative data were collected.

Survey format.

Participants were asked to answer a 25 item paper-format survey. Four survey items focused on collection of demographic information. The questionnaire was estimated to take 10-15 minutes to complete. Appendix A is the needs assessment cover letter with survey instructions.

Survey terminology.

For the purpose of this need assessment, 'learning differences' was defined to include: any diagnosed learning disabilities, physical or social-emotional disabilities, and

students more than one grade level behind as determined by psycho-educational assessments completed by the school psychologist or an outside provider. For the purposes of accurate data acquisition as it pertains to RQ3, 'resources' is defined on the survey to include software programs, access to testing reports and Individualized Accommodation Plans (IAPs), and/or consultation with the Pupil Assistance Committee.

Survey completion.

It was anticipated that approximately 35-40 faculty and staff would participate in the study. Of the 37 surveys distributed, 35 surveys were completed and returned to the assessor. This high rate of response can be attributed to survey setting. The Director of the Lower School scheduled fifteen minutes of faculty meeting time for survey participants during which they completed the questionnaire.

Variables used in the analysis

There are thirty-two variables used for the analysis of the twenty-five item survey. The additional variables were added so coding of narrative responses could be included with multiple choice responses. Variable names, variable definitions, and the coding scheme assigned to each response can be found in the code book (Appendix B). Survey data from all respondents was entered in Excel format and organized in numerical order by participant's assigned number code assigned to ensure anonymity.

Summary of Results

"I'm the one who is disabled, not the kids. I have no idea how to teach them."
- Survey Respondent

Results of the needs assessment survey confirmed an inadequacy exists at Apex Academy Lower School in regard to professional development pertaining to effectively

instructing students with learning differences, like ADHD, in inclusive private school classrooms.

RQ1: What gaps in skills, competencies, and professional development exist that may hinder faculty from being equipped to effectively instruct the influx of students with learning differences that are enrolling at a higher rate than ever before in our school?

Seventy one percent of respondents felt they lacked the professional development necessary to address the spectrum of abilities within their inclusive classrooms. Said one respondent: “We don't have enough licensed intervention teachers to work with students.

Our student demographics have changed but our teacher demographics have not.”

Eighty-nine percent of respondents have at least three grade levels of ability in their current classrooms so differentiation is a critical skill. Another respondent’s concern: “I think we do a good job with high kids and low kids--my fear is that a good average student gets the least amount of extra time.”

31 of the 35 survey respondents have attended some level of professional development regarding differentiation, but less than 1% actually used any information from that professional development to drive their instruction. Though it is unclear why this percentage is so low, one can speculate that it may be due to the PD occurring out of context of their classroom environment or a lack of clarity on how to incorporate the new information with their current teaching repertoire. One hundred percent of classrooms have students with learning differences, yet 83% of respondents have no special education certification or training to equip them with the skills and instructional strategies required to be efficient with this population. Forty nine percent of respondents have never attended any professional development about working with students who have learning differences. However, of those who have attended professional development

regarding students with learning differences, 72% used the information presented to drive their instruction.

RQ2: What roles does professional development play in providing instructional strategies to teachers for differentiation in inclusive classrooms?

Whether considering classroom management, assessments, direct instruction, one quickly starts to understand the complexity of any viable solution for supporting students with ADHD in the private education system. Teachers reluctant to invest time because they already feel over-burdened may realize the professional development will enrich their ability to manage their classrooms (O'Donoghue & Chalmers, 2000). Convenience in scheduling professional development is paramount in maximizing participation. Consensus was clear when 97% of survey respondents confirmed that they would be more likely to participate in professional development if it was held during in-service days. However, more variation existed in regards to frequency of professional development needed for best practice: 37% felt quarterly was appropriate, 29% thought monthly is best, 20% supported yearly professional development, and 14% believe bi-annual professional development is sufficient.

RQ3: What are the resources necessary for faculty to help serve their students with learning differences in an inclusive classroom setting?

While only 23% of respondents felt they lacked specific resources, such as software and manipulatives, many expressed frustration with the lack of time as a resource. "Our school has many new programs in place and some additional staff. However, it never feels as if we have the time to really delve in to each new program--we go full speed ahead with little 'training.'" Another respondent added: "I believe we need more time to work on implementation and collaboration with our peers." Literature

supports the needs assessment findings that lack of time was a primary challenge for Catholic schools in the research, but by removing competing priorities it may prevent teachers from feeling overloaded with responsibilities (Bello, 2006). Finding time for collaboration during the school day, rather than before or after school which teachers view as an additional responsibility, is crucial for faculty commitment to a PD program (Weber et al., 2013). By increasing the amount of job-embedded PD, the transfer from training to classroom is also increased (Simon & Black, 2011).

In addition to previous professional training, teachers have accumulated resources via their learning and life experiences on which they can draw leading to perceived feelings of expertise in specific areas of teaching (Byrnes, 2007). Given this faculty's experience and practice, it is evident they are proficient teachers of the historically homogeneous student population, yet successfully teaching kids with learning differences still eludes them.

Discussion

As a general rule, the teachers who are effective with traditional students are also effective when teaching students who have learning differences (McGhie-Richmond et al., 2007). However, their effectiveness is limited by the content of their training opportunities. One of teachers' biggest obstacles to implementing accommodations was a lack of professional development. Additional information, which may increase teacher effectiveness, would be helpful in meeting the needs of students with learning differences (Bello, 2006). While the spectrum of abilities within inclusive private school classrooms continues to grow, so does the need for effective differentiation strategies. By examining

the strategies of teachers who have shown success in this arena, professional development could be tailored to address these unique circumstances.

Tomlinson et al. (2003) indicate teachers do little to adjust instruction to be effective with academically diverse students. Even educators who support inclusive classrooms are likely to plan whole-class instruction so modifications are reactive and improvised rather than preplanned and proactive. Differentiation is proactively modifying curricula, activities, teaching methods, and resources to address individual students' needs. It is flexible, variably paced, knowledge centered, and learning centered. Successful implementation of differentiated instruction requires professionals to go beyond their comfort zone. Maximized opportunity for growth can only occur when students receive instruction suited to their individual readiness levels. To prevent superficial and ineffective investment behind classroom doors, any plans to implement differentiation must include faculty input (Weber et al., 2013). The faculty input on the needs assessment is what drove the creation of a solution.

CHAPTER FOUR

An Intervention May Address the Gaps Identified by the Needs Assessment

The onus is on educational leaders to determine ways to support inclusion that will be effective for students and teachers because educators require more training to meet students' individual needs (Leatherman, 2007; Shippen et al., 2011). The needs assessment, conducted by this author and completed by the Lower School faculty at a private Catholic school in spring of 2014, confirmed that gaps in professional development exist for teachers at Apex Academy. A PD intervention was crafted specifically as a solution to address the concerns relayed by the teachers on the needs assessment. Given that teachers want and need more training in regards to meeting all students' needs within an inclusive classroom setting, the learning they receive will be meaningful to them and directed-towards a common goal (Van den Bergh, Ros & Beijaard, 2014). A PD program to assist teachers in meeting the needs of all students, regardless of learning difference, is overdue.

Private schools often have inclusive classrooms, but teachers have typically received little or no training in meeting the needs of diverse populations. Teachers need to address this gap because students with learning differences can present significant challenges in inclusive elementary school classrooms (Leatherman, 2007; Shippen et al., 2011). Educators must be empowered with the professional development to effectively apply the instructional strategies shown to be most valuable in inclusive private school classrooms (Dixon, Yssel, McConnell & Hardin, 2014). Appropriately constructed and mindfully-delivered professional development for teachers may help them better

recognize and address the needs of diverse learners. A review of relevant literature identifies design elements for PD that informs the structure of successful PD efforts.

As a member of both the Archdiocese of Cincinnati Catholic Schools and the Independent Schools Association of Central States (ISACS), Apex Academy has professional development guidelines by which it should abide. In the current *ISACS Accreditation Guide*, “Standards for Membership” are outlined. According to Section F, which references personnel specifically, “the school shall demonstrate a commitment to the professional development of its staff,” (ISACS, 2013). Elsewhere in this same guide this standard is confirmed again: “ISACS seeks to support and develop the ongoing quest for new knowledge through a variety of resources and formats. ISACS maintains a commitment to responding to current learning needs and to anticipating the needs of exceptional 21st century schools” (ISACS, 2013).

In the Archdiocese of Cincinnati Catholic Schools Office’s *Educational Policy Manual for School Administrators*, PD expectations are referenced in Section 808.00 “Professional Growth” and considered the joint responsibility of the Archdiocese (identifying, designing, and implementing relevant and high-quality PD opportunities), the school (ongoing PD should be a planning and budgeting priority; data should be collected to shape PD goals), and the educator (participate in PD directed towards strengthening of the Catholic Identity of the school and continuous student improvement).

Effective Professional Development Can Be a Powerful Tool for Educators

Ongoing PD that is specific to the needs of the school and can be translated to their classrooms may reduce teachers’ frustration about lack of access to specific

practices, lack of time to learn and implement strategies, and feelings of isolation (Herner-Patnode, 2009). Research shows a positive correlation exists between pupils' performance and when a teacher last participated in professional development opportunities which is of critical importance given that forty percent of variation in student achievement can be correlated to teachers' expertise (Stronge, 2007). Relevant PD can improve teachers' ability to support students with learning differences in inclusive classrooms because it increases the capacity of teachers and enables them to more effectively meet students' needs (Evans, Thornton & Usinger, 2012; Shippen et al., 2011).

Most pre-service education is inadequate to equip inclusive classroom teachers with the skills necessary (Symeonidou & Phtiaka, 2009). PD intended to advance understanding of effective instructional strategies should include activities that are high-quality, sustained, intensive, classroom focused, ongoing, participatory and based on scientific research (Simon & Black, 2011; Yoon, Duncan, Lee, Scarloss & Shapley, 2007). Though it is clear teachers cannot maintain the mindset of what was perceived to work in previous decades, information is scarce regarding adequate and applicable PD on inclusion that considers teachers' personal convictions and styles (Symeonidou & Phtiaka, 2009). The quality of PD offered to educators is highly variable and more research is needed to understand how a teacher develops effective inclusion skills (Jordan et al., 2009). Ideally, upon completion of the planned intervention, inclusive classroom teachers at Apex Academy will feel confident and execute their strategies smoothly and effortlessly.

Professional development must be redefined as team-based and research driven to customize learning not for the 10% with learning differences but for the 100% with learning diversity (Bassett, 2007). Creating environments designed for inclusion of all students, not just select individuals, is the priority (Avramidis, 2005). Professional development, when successfully orchestrated, has the power to evoke positive lasting change. Specific characteristics of effective PD that emerged from the literature will be discussed. Additionally, the most commonly occurring effective instructional strategies, in regards to meeting the needs of students at all levels of ability, identified from the research will also be explored. These themes will influence the planning of the intervention of PD for teachers on the topic of instructional strategies for differentiation in inclusive private school classrooms.

According to the needs assessment, the site of the intervention has a seasoned faculty: 74% in the field of education for over a decade and 48% in the field for over twenty years. Teachers who received pre-service training prior to the 1990s may need more PD on the topic of differentiating in inclusive classrooms to address the challenges diverse learners present (Grskovic & Trzcinka, 2011). Professional development can improve student learning and instructional practices, but it must take into account how teachers learn (Borko, 2004; Van den Bergh et al., 2014). Adults are problem-centered learners who are most receptive to new information when they know they need it (Evans et al., 2012).

To be successful in educating students who have ADHD, teachers must have the expertise to present information in multiple formats (Eva & Walker, 2010). Regardless of a teacher's years of experience, professional development can help alleviate this

struggle by combining areas of strengths from seasoned teachers, such as classroom management, with new teachers' strengths, like incorporation of technology. PD helps educators build specific skills they can use to identify learning challenges and thus prevent students from receiving erroneous labels (Mann, 2006; Olson 2008).

High Quality Professional Development Leads to Increased Efficacy

Efficacy influences choices, efforts, and one's quality of problem-solving skills. Insecurities may influence teachers' attitudes and instructional decisions, so improving their efficacy is a high priority (JohnBull et al., 2013; Shippen et al., 2011; Simon & Black, 2011). Professional development showed a positive effect on teachers' efficacy; it increases in direct correlation to time spent in training (Dixon et al., 2014; Simon & Black, 2011; Whitley, 2010). Efficacy is significantly related to student achievement and motivation, accounting for approximately 14 percent of variance in academic achievement (Byrnes, 2007; Whitley, 2010). Research regarding efficacy suggests people with confidence in their ability are more likely to initiate and persist in their efforts (Ng, Dyne, & Ang, 2009; Simon & Black, 2011).

Specific training about inclusive education can improve teachers' repertoire and understanding of students' exceptionalities thereby increasing the teachers' confidence in being effective (Byrnes, 2007; Whitley, 2010). Job-embedded PD for educators is prolific as social learning with peers can be valuable in improving efficacy due to the thinking and behavior modeled. Hands-on experiences and practical application allow teachers to strategize about the best way to work with children with learning differences and feel confident in their inclusive classrooms (Dixon et al., 2014; Guskey & Yoon, 2009; Leatherman, 2007).

Neuroeducation-Influenced PD

Neuroeducation reinforces student-centered teaching as best practice because teachers who have the ability to comprehend plasticity and neurogenesis are empowered with the capacity to change the structure of their students' brains rendering no child unteachable (Dubinsky, 2010). Educators who understand the basic structure and functions of the brain are more effective; however, they need information to be able to incorporate research findings into practice in their classrooms (Hardiman, Rinne, Gregory & Yarmolinskaya, 2012). Daniel (2012) emphasizes the importance of offering teachers specific techniques rather than merely reporting findings because data means very little if teachers are unclear on concrete steps to implement it. Once teachers understand the value and longevity of effective PD, it will be critically important to show them how to apply strategies in their classrooms. To maximize effectiveness, potential benefits should not be communicated without offering specific guidelines and techniques that ensure application.

The Brain-Targeted Teaching Model

Roediger and Pyc (2012) reference the numerous brain-based products touted as panaceas for any school willing to pay for them. Slick marketing campaigns imply a quick fix to educational concerns exists, as evidenced by the estimated \$2.2 billion spent annually on products to improve education. However, the Department of Education research indicated expensive products offered, at best, only moderate gains (Roediger & Pyc, 2012). Instead, drawing on the work of Hardiman (2012), components of this PD are influenced by the Brain-Targeted Teaching Model. The BTT model combines neuroscience with research based instructional strategies to plan effective teaching

because all learning is brain-based but all teaching is not. As a result, not all teaching results in learning. PD topics will include improving attention and memory, physical and emotional climate, creating a common vocabulary, executive functions, and dispelling neuromyths. Hardiman explains neuromyths, such as learning styles, are deeply ingrained in school culture. Research shows 90% of people surveyed believe everyone has a preferred learning style and that teaching to that learning style will improve learning, but no evidence exists that students taught in their preferred style performed better than those taught without it.

The BTT model digests complicated neuroscience research and converts it into a relevant roadmap for teachers with a progressively heterogeneous student body.

Hardiman (2012) believes novelty in physical environments has positive effects on students with ADHD whereas bland environments will leave kids seeking ways to stimulate themselves. Teachers should know learning may be less efficient in stagnant classrooms, but educators rarely receive information about the ties of physical environment to student achievement. Once teachers realize brain research can enhance teaching and validate best practices, they can better serve students at all levels of ability. Teachers who comprehend basic neuroscience concepts have improved levels of understanding of students' learning (Dubinsky, Roehrig & Varma, 2013; Radin, 2009).

Themes to Consider in the Creation of the PD Intervention

Four themes of effective professional development emerged from the literature: structure of the PD, allotted time for development opportunities, duration of the program, and the importance of creating a collaborative environment.

Well-organized structured professional development programs are most effective

A PD program must have a well-organized structure, clear direction and a description of contextual factors to maximize time and effectiveness (Guskey & Yoon, 2009; Kratochwill, Volpiansky, Clements & Ball, 2007). To be most effective, PD must include follow-up experiences, be supported by administration, and be of an appropriate duration (JohnBull, Hardiman & Rinne, 2013). Job-embedded PD aimed at the entire faculty may be more effective than individual educators attending workshops. Greater change in practice was seen when same school groups attended PD together as compared to individuals from various schools assembled for training (Kratochwill et al., 2007). Though options vary widely with mixed results, the most effective PD includes teachers in the planning process (Herner-Patnode, 2009; Van den Bergh et al., 2014).

Well-defined PD includes outcome measures in addition to activities and materials for teachers, to enable educators to use the resources as intended (Borko, 2004). Successful PD helps teachers perform research-based instructional practices via active learning experiences (Guskey & Yoon, 2009; Van den Bergh et al., 2014). Making the professional development 'context-bound' to teachers' unique circumstances increases the likelihood of implementing what is learned. Having the content of the PD does little to improve teaching practices if the information is not applied within the context of their classrooms (Van den Bergh et al., 2014). Presence or absence of a deep level of understanding influences one's ability to transfer the principle, however, offering both content and context during a PD program will increase the likelihood of transfer from PD to classroom (Barnett & Ceci, 2002).

Time Must Be Allotted for Professional Development

The intent of the PD is to help teachers apply in their classrooms the information learned during the training, thus it is critical educators have time to actually initiate application (Byrnes, 2007; Van den Bergh et al., 2014). Many PD programs are not designed with behavioral change as their goal, instead they exist to satisfy state licensure requirements; however, successful PD is achieved only with practice, feedback, experimentation, and knowing when to apply new ideas (Helsing, Howell, Kegan & Lahey, 2008). To be successful in educating students who have learning differences, teachers must have extended practice time to develop skills thoroughly. There is a critical difference between being told what needs to be done and being able to recognize the best approach independently in a variety of learning situations (Barnett & Ceci, 2002).

Professional development within normal working hours is respectful of the busy schedule of educators, therefore, administrators should allot time during the day for groups to meet and collaborate (Herner-Patnode, 2009). The needs assessment confirmed that one resource the Apex Academy faculty lacks is time which research shows can become a barrier to learning (Radin, 2009). Time allotted for PD is critical for success as it allows educators to more deeply understand the material presented (Guskey & Yoon, 2009; Philpott et al., 2010).

Duration of Professional Development May Effect Likelihood of Implementation

To increase the likelihood of implementation in classrooms and future use of the strategies, teachers need information to be continuously disseminated (Hardiman et al., 2012; Kratochwill et al., 2007; Simon & Black, 2011). In the duration of one school

year, teachers may show significant improvement in their overall understanding of inclusion because the information examined has a cumulative effect (O'Donoghue & Chalmers, 2000). While a planned intervention may be completed in a shorter timeframe, proficiency of professional skills can be acquired within weeks and months (Ericsson, 2006). Monthly trainings rather than one long PD session during an in-service day is better because PD programs that go beyond a single out-of-context occurrence are more successful (Bransford, Brown & Cockings, 2000).

A Collaborative Approach Can Reduce Resistance

Adults prefer collaborative learning that is practical and experiential in nature (Van den Bergh et al., 2014). A key component of a community-centered collaborative learning environment is sharing successes and failures (Avramidis, 2005; Bransford et al., 2000; Leatherman, 2007). By establishing trust and fostering open communication, one can balance respect for teachers and the critical analysis of their teaching while also creating a community where inquiry is valued (Borko, 2004). PD that challenges assumptions and helps participants acquire new beliefs that align with more effective practice will reduce resistance to change, as will creating a collaborative approach, in which effectiveness and acceptance are interwoven (Helsing et al., 2008).

Independent schools have the advantage of being free to experiment with policies and procedures, but this independence can also mean a lack of systemic push to innovate (Bassett, 2007). Apex Academy has a long-standing history that evokes considerable school pride; however, the traditional culture lends itself to an aversion to change. Educators desire to avoid looking incompetent leads to hesitancy about new experiences. For teachers to invest in the PD process, change should be gradual. ‘Selective

adaptation' describes teachers' hesitancy to make radical changes; instead they make carefully considered modifications to their regular practice (O'Donoghue & Chalmers, 2000). Since innovative initiatives may be viewed as a threat rather than an opportunity, implementing a solution is not possible without a well-established foundation of trust.

Managing ADHD in Inclusive Classrooms

While it is often a struggle for students with ADHD to attend, it is also a struggle for a teacher to get and maintain their attention. Effective classroom organization and management skills are the key to earning and sustaining students' attention (McGhie-Richmond et al., 2007). Appropriately designed PD can help teachers strengthen their skills so less instructional time is wasted addressing behavioral disruptions (Grskovic & Trzcinka, 2011). Research emphasizes the importance of offering teachers specific techniques rather than merely reporting findings (Van den Bergh et al., 2014). Teachers would benefit from using the following suggestions for focusing and maintaining student attention: immediate feedback, using signals at transition, incorporating movement, offering a variety of materials and aids, appealing to the students' interests, and asking students to restate (Schunk, 2008). As a result, the teacher will increase the amount of instructional time s/he has available.

Due to the chronic and pervasive nature of ADHD, implementation of interventions must be consistent and long-term; therefore interventions must be practical and feasible if compliance from classroom teachers is expected (Bussing, et al., 2014). Giving students with ADHD freedom in their instruction can go a long way in establishing a student-teacher connection (Mann, 2006). Allowing the student the

opportunity to choose from a variety of offered activities and materials gives the child a feeling of control over their task (Raggi & Chronis, 2006).

Behavior-Based Classroom Interventions

Chronis, Jones and Raggi (2006) explored behavior-based classroom interventions in their study of evidence-based psychosocial treatments for kids with ADHD and found it was a very effective way to alter behavior in a school setting. A teacher becomes the agent of change by delivering psychosocial treatments to the child directly. One effective example of this intervention is the use of positive consequences as reinforcement and negative consequences as a deterrent. Consequences that are meaningful and motivating need to be considered across grade levels and stage of development. Chronis et al. found that greater success when consequences are tangible, offered frequently, and immediately follow the behavior because it allows the students to comprehend the connection between their behaviors and the consequences.

Consequence-based interventions, including token reinforcement and response cost, were highly effective (Trout et al., 2007). Improvements in the students' productivity and efficiency were noted as evidenced by an increased rate of response and work completion. Accuracy of the students' responses across subjects also improved. Contingency management that reinforces reduced activity levels and sustained attention through use of a token system can rapidly improve levels of on-task behaviors (Antshel & Barkley, 2008). Contingency management interventions resulted in greater effects on academic outcomes and superior effects on behavior outcomes when compared to other intervention types, especially on engagement with instruction and improving classroom behavior (DuPaul et al., 2012).

Identification of specific target behaviors by the teacher will influence techniques used in the classroom to address the behaviors. Techniques may include: planned ignoring, time out, praise, and effective commands (Chronis et al., 2006). Use of a daily report card (DRC) is a school-based intervention that allows a child to be rewarded at home for achieving specific behavior goals set at school (Fabiano et al., 2010). This creates a home-school collaboration that benefits the student by informing the parent of progress so behaviors can be reinforced at home (Chronis et al., 2006).

Social Skills Training

Chronis et al. (2006) believe difficulty with interpersonal relationships is one characteristic of students with ADHD. The likelihood of peer rejection increases when a child exhibits high levels of aggression, non-compliance, and/or hyperactivity. Social skills such as communication, participation, and cooperation are important to peer relationships, so this intervention focuses on developing and reinforcing these skills. When social skills training for the child is combined with parent training, the positive effects are more robust.

Academic-Based Classroom Interventions

Unlike behavior-based interventions, which target task engagement and disruptive behavior, the academic-based interventions manipulate instruction and materials to improve outcomes (Chronis et al., 2006). Direct instruction and strategy instruction are among the most effective interventions for all students with learning differences, not just those with an ADHD diagnosis (Trout et al., 2007). Teachers may find differentiation comes more naturally while using a student-centered approach to instruction. Strength-oriented accommodations and student-centered learning are the road map that many

effective teachers are using in their instruction of students with ADHD. Rather than remediating areas of weakness, as is the traditional approach, instead teachers differentiate so areas of strength are enriched. Offering students a variety of approaches to gather information, such as instructions given orally, distributed as a handout, or written on a whiteboard and then enabling them to select the method they feel works best for them is empowering (Mann, 2006). A move away from teacher-directed instruction is an important aspect of successfully teaching students with ADHD. There is power that comes from students listening to their peers' ideas, defending their opinions, strategizing, and problem solving of their own volition. Educators need to be cognizant of the varied academic needs and interests of their students (Mann, 2006).

Effective Instructional Strategies for Differentiation

Identifying effective school-based academic interventions for students with ADHD is critical given its adverse impacts on academic functioning in math and reading comprehension (Jitendra et al., 2008; Pickering, 2003). Students with ADHD have been successful when teachers employ strategies like immediate feedback, prompting for responses, working one-on-one, and letting the learner set her own pace (Jitendra, et al., 2008). Approaches found to be useful for students with learning differences, and also traditional students, within the same classroom were evident in the research. This is of utmost importance because inclusive classroom teachers are unlikely to alter whole-group instruction when students with learning differences, like ADHD, are included in the general education classroom (Shippen et al., 2011). Computer-Assisted Instruction and Class-wide Peer Tutoring were the most commonly occurring effective instructional strategies identified in the literature. Explicit Inquiry Routine, Cognitive Strategy

Instruction, Collaborative Strategic Reading and Schema-Based Instruction are additional examples of effective instructional strategies (Impecoven-Lind & Foegen, 2010; Jitendra et al., 2008; Shippen et al., 2011).

Computer-Assisted Instruction

Computer-assisted instruction (CAI) improves the presentation of instructional material resulting in increased student motivation and improved academic achievement (Jitendra et al., 2008). Activities can be individualized to accommodate shorter attention spans allowing students to be more involved in learning, which may increase confidence and motivation (Raggi & Chronis, 2006). Research on CAI used to improve the oral fluency and basic computation skills of students with ADHD showed clinically significant gains (Jitendra et al., 2008). While initial effort may be required by teachers, it can be a time-saver once implemented. One limitation is its use is dependent upon a teacher who is confident in her technological abilities. Educators who don't deem themselves 'tech-savvy' may be more comfortable with additional training prior to using CAI.

Class-Wide Peer Tutoring

Class-wide peer tutoring (CWPT) is an example of a specific instructional strategy employed by teachers in inclusive classrooms that encourages active student engagement from all students, regardless of diagnosis (Impecoven-Lind & Foegen, 2010; McClanahan, 2008; Raggi & Chronis, 2006). Research shows this intervention benefits academic performance (Chronis et al., 2006). Vygotsky (1978) believed collaboration with more advanced peers helps learners to reach their full potential. When used with heterogeneous elementary student groups, academic achievement increased in both

reading and math (Impecoven-Lind & Foegen, 2010). Jitendra similarly touts the positive results from use of CWPT. The improvement in spelling and math were also noted, as they were in Impecoven-Lind's article, but, in addition, Jitendra found CWPT led to reductions in the off-task behaviors of students with attentional limitations (Jitendra et al., 2008). CWPT enables teachers to implement the intervention for all students without singling out the learner with ADHD (Raggi & Chronis, 2006).

Explicit Inquiry Routine and Cognitive Strategy Instruction

Explicit Inquiry Routine (EIR) instructional method is an advantageous technique for teachers whose students have difficulty sustaining attention because it uses active participation and experiential learning. Memory problems, like those experienced by students with ADHD, may be countered by the explicit and scaffolded instruction of EIR (Impecoven-Lind & Foegen, 2010). Cognitive Strategy Instruction (CSI) has been shown to be highly effective with students who have learning differences, like ADHD. CSI, like EIR, also uses explicit instruction to enable students to solve problems and attack complex tasks (Impecoven-Lind & Foegen, 2010). Math instruction is more effective when students work towards a conceptual understanding of the concepts instead of focusing solely on algebraic formulas and memorizing math facts (Mann, 2006). Rote instruction is typically ineffectual with students who have ADHD, so a strategy that helps develop higher order thinking skills, like CSI and EIR, is important.

Collaborative Strategic Reading

Collaborative Strategic Reading (CSR) is an effective strategy to promote reading comprehension in students with reading disabilities (Jitendra et al., 2008). It starts with students assigned by the teacher to specific roles in the group, then is followed by 'think-

alouds’ used to model strategies (Jitendra et al., 2008; Roediger & Pyc, 2012). One limitation of CSR is the initial investment of time required to teach students about the specific roles and the responsibilities and expectations that accompany each role. Routinely employing this strategy will reinforce this information with the students and result in their independent efficiency.

Schema-Based Instruction

Schema-Based Instruction (SBI) also employs ‘think-alouds’ as part of its stratagem and assists students in the development of self-monitoring skills which are essential to cognitive growth (Jitendra et al., 2008). Self-monitoring skills are one of the assets of a self-regulated learner, the ultimate goal for all students regardless of ability. Students with good self-regulating skills were better prepared to succeed in higher education and were more resourceful and self-reliant (Zimmerman & DiBenedetto, 2008). For students with and without learning differences, mathematical problem-solving performance was effectively enhanced with SBI (Jitendra et al., 2008). Cooperative learning and think-aloud instruction were the most influential instructional strategies for teacher candidates considering inclusive classrooms (Eva & Walker, 2010). These strategies are not limited by funding or the need for specific equipment and resources.

Specification of Solution to be Implemented

A comprehensive job-embedded PD program addressed the lack of PD specific to working effectively with students with learning differences in inclusive private school classrooms. Monthly all-faculty meetings in the Apex Academy Lower School were the setting for the PD intervention. PD sessions for all faculty, approximately 25 participants, occurred once a month starting in September 2015 and ending in March

2016. The seven PD sessions during the 2015-16 school year occurred between 7:00 am-7:30 am on the first Tuesday of every month.

It is challenging to meet the diverse needs of educators with one PD program that engages all participants because teachers vary in their level of desired activity and enjoyment of concrete learning experiences (Ng, Dyne & Ang, 2009). Monthly PD would actively engage faculty with hands-on activities while an open dialogue personalizes the experience and encourages faculty to invest in the process (Van den Bergh et al., 2014; Weber et al., 2013). Specific PD topics were:

- September- roadmap for whole PD program, identifying learning differences, ADHD in the classroom, dispelling neuromyths
- October- Establishing the Emotional Climate for Learning (from Hardiman's BTT model)
- November- Creating the Physical Learning Environment (from Hardiman's BTT model)
- December- Overview of strategies to address ADHD including academic, behavioral, and socio-emotional (social skills training)
- January- Social constructivism, memory, metacognition. Academic-based interventions: Computer-Assisted Instruction and Class-wide Peer Tutoring
- February- Behavioral interventions: daily report card (DRC); collaborating with parents for success; contingency management and use of a token system; consequence-based reinforcement
- March- Conclusion of PD sessions; completion of scales, supplying additional resources

One environmental factor that may significantly affect the treatment process is lack of time. Isolated PD with no follow-up limits acquisition of new skills because it underestimates the complexity of change in a real-world context (Helsing et al., 2008; Van den Bergh et al., 2014). This is why collaboration with stakeholders in administrative roles is vital to the implementation. Administrators can assist in a schools' evolution by helping teachers meet students' evolving requirements. These stakeholders play an important role not only in allowing time for faculty to engage in PD, but to also

ensure the strategies are implemented in the teachers' classrooms (Dixon et al., 2014; Simon & Black, 2011).

Continuing support is important to the increase likelihood of implementation in classrooms and future use of the strategies (Kratochwill et al., 2007). Teachers with strong efficacy can meet a range of students' needs by calibrating their instruction based on pupils' responses then modifying interventions to fit each student's circumstance; evaluating the effectiveness of the adaptation is also important (Impecoven-Lind & Foegen, 2010; McGhie-Richmond et al., 2007). Focusing on a student's progress rather than their own perceived limitations helps teachers set realistic expectations and leads to greater sense of efficacy in their ability (Stempien & Loeb, 2002).

CHAPTER FIVE

Implementation and Evaluation

The purpose of this intervention evaluation is to determine the effects, if any, of professional development (PD), performed on-site and during normal school hours for the duration of seven months, on the efficacy of inclusive classroom teachers in a private Independent school in Cincinnati, Ohio. Thus, the evaluation question to be answered is: What is the effect of a seven month job-embedded monthly professional development (PD) program on the efficacy of teachers instructing elementary students with ADHD in inclusive private school classrooms?

Evaluation Strategy

Changing teachers' behavior could take years and measuring that change would take at least that long. Hence this study focused only on evaluating the intervention's outcome by measuring efficacy levels before and after the seven month PD program. Numerous factors can influence teacher efficacy, so caution was used when evaluating the outcome of the PD to ensure measured improvements were not erroneously credited to the intervention. With a quasi-experiment design, one must eliminate possible explanations that could taint the treatment effect and prevent constructing a solid causal inference.

The Teacher Self-Efficacy Scale

Rossi, Lipsey and Freeman (2004) believe credible evaluations come from reliable, valid, and sensitive outcome measures. Logistically, one needs an instrument that is inexpensive, pencil-paper administered, and not overly time consuming for respondents. Rossi et al. confirm a ready-made tool makes sense if it matches what one

intends to measure. A quality instrument already exists for measuring teacher efficacy. The Teacher Self-Efficacy Scale (TSES), which may also be identified as the Teachers' Sense of Efficacy Scale or Ohio State Teacher Efficacy Scale (OSTES) in the literature, is a 24-item scale with a Likert-type response format. There is also a 12-item short form of this scale which was used for sake of brevity (Appendix E). The instrument breaks efficacy into three subscales: instructional strategy, class management, and student engagement. Rossi et al. note the preference of researchers to use measures with reliability coefficients at .90 and above. The reliabilities for the TSES subscales were reported as .91, .90, and .87, respectively. Construct validity was evident in its strong correlation with other self-efficacy measures (Dixon et al., 2014).

Evaluation Plan

The evaluation plan was to administer the TSES to respondents a total of two times. The first administration took place in September 2015, immediately preceding the first monthly PD session. The second administration was completed in March 2016, immediately after the final monthly PD session. Time was allotted for completion of the surveys at the PD sessions. The reason for this was twofold. First, the ease of administration increases when the respondents are gathered in one place. Second, this method provides the highest response rate (Wholey, Hatry & Newcomer, 2010). This is the same technique that was used for the needs assessment survey which yielded a 95% response rate. This significantly exceeds the 70% or higher response rate that is expected from high-quality surveys (Wholey et al., 2010). Nonresponse bias can also be eliminated as a potential weakness because this high response rate was achieved again.

The hypothesis was that after completing seven monthly all-faculty PD sessions throughout the 2015-16 school year, teachers would demonstrate an increased efficacy in instructing elementary students with ADHD in inclusive private school classrooms as evidenced by the increase in teacher reported scores on the Teacher Self-Efficacy Scale (TSES) distributed in March 2016 (post-intervention) when compared to baseline TSES scores collected in September 2015 (pre-intervention).

Potential Threats to Validity

Quasi-experimental designs are considered inferior to randomized design; however they do have specific strengths such as practicality and convenience (Rossi et al., 2004). Given the participant pool, a random assignment was not feasible for this experiment. With a quasi-experiment, potential threats should be ruled out as much as possible beforehand. Concerns about threats to internal validity were anticipated. There were two in-service days for Lower School faculty between the pre- and post-test TSES. To ensure any measured improvements in efficacy were provided by the intervention, rather than any PD provided by administration on those days, was an important consideration. This was not a problem, however, because those in-service sessions focused primarily on global awareness and technology.

Another potential threat to internal validity was regression via an extreme score on the pre-test. The pre-test measured efficacy of teachers in regards to teaching students with ADHD in inclusive classrooms. If the intervention was effective, then the scores on the efficacy scale would be higher at post-test. The potential problem is that the pre-test was given at the first faculty meeting of the school year. Students are still in the 'honeymoon phase' with behavior. Teachers are feeling refreshed and eager following a

relaxing summer. This could have caused an inflated sense of efficacy. End of the year administration of the scales may have lower scores due to fatigue, especially if a teacher had students who were more challenging than is typical. To offset this, the post-intervention scales were completed in March instead of the end of the school year in June when professional fatigue would be at its highest level.

To further mitigate this potential threat, additional data collection measures beyond the pre- and post-test were employed. By adding a supplementary data collection method, it not only strengthened the design but it also decreased the threat to construct validity in the form of mono-method bias (Shadish et al., 2002). A shorter version of the 50 item Ashton Efficacy Vignettes offered a norm-referenced look at different dimensions of teaching including: instruction, motivation and discipline (Tschannen-Moran, Hoy & Hoy, 1998). The vignettes were edited from fifty to five to be respectful of the teachers' time; updates to outdated language were also made to increase appropriateness (Appendix F).

The categories of the Ashton Efficacy Vignettes, instruction, motivation and discipline, are a useful correlation with the TSES subscales: instructional strategy, student engagement, and class management. Analysis of TSES and Ashton Vignettes scores overall offer a general idea of the effectiveness of the PD program. Analyzing the data by subscale is also useful as each tool's subscale corresponds with a specific aspect of the PD program presented. For example: TSES's Instructional Strategy subscale ("Instruction" in Ashton) ties to class-wide peer tutoring and computer assisted instruction presented in January's PD session. TSES's Class Management subscale ("Discipline" in Ashton) corresponds with Hardiman's Brain-Target of emotional climate

and avoiding power struggles presented at the PD in October. TSES's Student Engagement subscale ("Motivation" in Ashton) accounts for Hardiman's BTT of physical learning environment including novelty and movement presented in November's PD session.

Intervention Implementation Procedure

One threat to statistical conclusion validity is unreliability of treatment implementation. (Shadish et al., 2002). Serving in the roles of both creator and implementer of an intervention may increase high fidelity of implementation, but it does not guarantee it. To increase the likelihood of high fidelity, the process evaluation plan involved measuring two different aspects of dosage in addition to participant responsiveness. Nelson, Cordray, Hulleman, Darrow and Sommer (2012) suggest that multiple fidelity measures are the best way to ensure a thorough assessment of intervention fidelity. Dose is the amount of program content the participants receive, while participant responsiveness is defined as the extent to which participants are engaged by the program's content and activities (Dusenbury, Brannigan, Falco & Hansen, 2003).

The fidelity indicators for dosage were both the amount of the program delivered to participants and the attendance of the participants. This data was collected by self-report and participant attendance logs, respectively (Dusenbury et al., 2003). Participant responsiveness was indicated by the attendees' engagement during the monthly PD sessions as measured by responses to exit cards. Execution of all three fidelity indicators were the responsibility of this researcher.

Fidelity Indicator: Dosage of PD Offered

For this indicator, dosage was defined as the amount of the program delivered to participants. This data determined if the PD was implemented as outlined in the intervention design. The data source for this information was the result of self-reports. According to Dusenbury et al. (2003), dosage self-reports tend to be over estimates. To eliminate this possibility, a timer from a cell phone application was used to record the duration of the PD sessions. The frequency of the data collection was ongoing for the duration of the seven month intervention. In order to monitor if the PD was implemented as intended by the intervention design, the data collection tool was an ongoing personal log of the date of each session and the length of each session, as determined by the timer. Each of these figures was documented every month until the seven month PD intervention concluded.

Fidelity Indicator: Dosage of Participation

While the dosage indicator above focused on the amount of PD given to participants, it was also important to document the dosage of actual participation of the attendees. Thus, the dosage of participation was the second indicator of fidelity. The data source for this indicator was an attendance log. It was used at the beginning of each monthly PD session. The data collection tool was a paper sheet listed with all expected attendees' participant codes. Boxes followed each code on the sheet with options for checkmarks in either 'present' or 'absent.' This form was completed during the faculty meeting prior to the start of the PD session. If a person arrived late or left early, this was also to be documented on the same log.

Fidelity Indicator: Participant Responsiveness

The data collected about dosage showed the intervention was implemented with high fidelity because the PD was presented with the frequency and duration of its design. It also confirmed that all participants who were supposed to attend did so. However, an indicator confirmed the participants who attended were actually engaged in the session was also desired. To measure the engagement level during each intervention's monthly PD session, exit cards were used to collect data. The exit cards contained two multiple choice questions about the usefulness of the information presented and the extent to which attendees learned new information. Space for constructed-response comments and requests for additional information were included on the exit cards. Time was allotted for teachers to complete the cards at the end of each PD session. Each monthly session had specific learning objectives, based on that month's particular topic that the PD presenter conveyed. After each monthly session concluded, data obtained via exit card or other means, was reviewed to confirm the information was conveyed in a way that maintained participant engagement.

A secondary indicator of participant responsiveness came in the form of data collected by the ActiVote Audience Response System. It was used to ascertain the extent to which PD participants believed neuromyths as truth. Due to the anonymity an audience response device offers participants, social discomfort for answering incorrectly in a public forum was minimized. More importantly, the participants' engagement was evident as 100% of the participants responded to the inquiries requiring ActiVote responses.

Specification of Expected Output

The desired output was that teacher efficacy in educating students with learning differences like ADHD would increase, as measured by the pre- and post-Teacher Self-Efficacy Scale (TSES). In the long term, an expected output is that teachers will use the strategies from the ‘tool box’ they assembled during the PD. Participants’ response to treatment may be influenced by years of experience in the field and/or previous or concurrent exposure to PD specific to this topic. Any contact made with teachers regarding the PD program, but outside the scope of the scheduled PD meetings, was documented and considered when determining the effects of the program on that participant.

Possible Limitations of Design

One major limitation when using a pre-post design is that one cannot claim with absolute certainty that the program, not other life occurrences between pre-post measures, evoked change. However, multiple measures of outcome can strengthen a simple pre-post design (Rossi et al., 2004). One potential solution to this concern was to use the aforementioned Ashton Efficacy Vignettes, in conjunction with the TSES, to gauge teachers’ current efficacy and their perception of the potential of students with learning differences.

Rossi et al. (2004) discussed the multidimensionality of outcomes with numerous components to consider. This led to another potential limitation of this design. Even if the PD was successful in offering instructional strategies to ensure that inclusive classroom teachers can meet each student’s needs, it did not guarantee an increase in the teachers’ efficacy to apply the approaches independently. As a result, this could have

potentially prevented an improvement in efficacy ratings. A teacher's emotional response to a situation has the power to inflate or deflate her efficacy scores. Using an instrument that relies on participants' responses to questions leaves the evaluator open to some level of unreliability because a respondent's mood can affect responses (Rossi et al., 2004).

Regardless of design limitations, the outcome evaluation plan determined the effect a seven session job-embedded monthly professional development (PD) program had on the efficacy of teachers instructing elementary students with ADHD in inclusive private school classrooms. The potential to expand the PD program to other divisions at Apex is probable. If results prove to be transferrable to schools of a similar demographic, it is possible that schools in fellow associations, such as National Association of Independent Schools (NAIS) and Independent Schools Association of Central States (ISACS), would also benefit from solution implementation.

CHAPTER SIX

Study Format and Outcomes

The question this researcher sought to answer is: What is the effect of a seven month job-embedded monthly professional development (PD) program on the efficacy of teachers instructing elementary students with ADHD in inclusive private school classrooms? Each monthly PD session was approximately 30 minutes in duration during allotted faculty meeting time. Participants' attendance was logged for each session; also documented was all follow-up initiated by any participants outside the scope of the monthly sessions.

First Session of the PD Program

The first PD session was used to discuss informed consent and the general outline for the entire PD program. This researcher explained the planned intervention and how it tied to the on-site needs assessment from spring 2014. Also discussed were the benefits of job-embedded PD and the potential for participants to earn CEUs. The majority of time was allotted for participants to individually complete the Teacher Self Efficacy Scale (TSES) and Ashton Vignettes so baseline scores could be obtained. Given the data collected on the scales during this session, no exit card data was requested of the participants during this session.

Pre-Treatment Baseline Scores on TSES and Ashton Vignettes

To obtain an accurate baseline score, all participants completed a TSES and Ashton Vignette prior to receiving any treatment. The results of the composite scores from fall 2015 on the TSES averaged 83.2 points out of a possible 108, resulting in 76.9%. The scores were divided in to three subscale scores for Instructional Strategies

(IS), Classroom Management (CM) and Student Engagement (SE). The percentages for these subscales were 79.4%, 74.4%, and 77.2% respectively. Individual participant scores varied with the lowest reported score a 69 of 108 points resulting in 63.8% and the highest reported score as 98 of 108 points resulting in 90.7%.

The pre-treatment baseline Ashton Vignette scores were also collected in fall 2015. The composite average of the participants' responses was 25.1 points out of a possible 35, resulting in 69.7%. Like the TSES, the Ashton was also divided into three subscale scores for Instruction (I), Discipline (D), and Motivation (M). The percentages for these subscales were 73.6%, 78.3%, and 66.4% respectively. Individual participant scores varied with the lowest reported score an 18 out of 35 points resulting in 51.4% and the highest reported score as 30 of 35 possible points resulting in 85.7%.

Second Session of the PD Program

To collect data for the purposes of ensuring participant engagement this session, ActiVote Audience Response System was employed to conduct a quiz about neuromyths. The two neuromyths with the largest erroneous belief in their accuracy were differences between the left and right sides of the brain and teaching to one's learning styles. The latter of which was believed by 33% of participants. During this session, the presenter explained basic elements of neuroeducation and showed a media clip about neuroplasticity. The participants were empowered with knowledge of teachers as neuro-sculptors of their students' brains, thus rendering no child unteachable (Dubinsky, 2010).

Following this PD session three participants requested additional information about the topics presented. Participant 140 desired to discuss Brain-Targeted Teaching, which would not be presented in depth until the following PD session, and borrowed the

presenter's Brain-Targeted Teaching text (Hardiman, 2012) for several days. Participant 131 discussed traumatic brain injury (TBI) and co-morbidity with learning differences. Lastly, Participant 144 shared that she learned about brain science in college twenty years ago and was surprised which elements have evolved and which have stayed the same.

Third Session of the PD Program

During this PD session, the presenter described and discussed in detail two of Hardiman's Brain Targets: emotional climate and physical environment. Also presented were ways in which BTT can help meet all students' needs in inclusive classrooms. Specific information regarding the impact of stress on learning, prefrontal cortex development, and executive functions in ADHD students was relayed before teachers performed two hands-on exercises from the Misunderstood Minds website. This activity allowed PD participants to experience learning difficulties firsthand and see the impact on one's performance. The intent was to help teachers understand that a student's desire to do well and the accommodation of extra time are often not enough to lead to success.

This session was the first one to employ an exit card as a means of collecting participant feedback. The data was positive. When given the prompt "Of the information presented in today's session, how much is useable to you?" 100% of the respondents indicated they would use at least some of the information and 62% designated they would use most or all of it. In regards to the prompt, "To what extent did you learn more about neuroeducation and ADHD as a learning difference?" 100% of respondents learned more about neuroeducation and ADHD as learning difference and 86% learned a moderate to great extent more information from the presentation. In the interim between this PD session and the one that followed, only one teacher requested additional information.

Participant 142 sought material she could use to support her arguments for best practices that conflicted with a peer's idea of how to best educate kids with limited attention spans.

Fourth Session of the PD Program

The content of the fourth PD session was focused on an overview of the impact of ADHD on social and academic functioning. Correlations between ADHD and substance abuse, unplanned pregnancy, and eating disorders were acknowledged. Both psychopharmacological and alternative treatments to ADHD were explored. Teachers were instructed that maintaining student engagement requires frequent and immediate feedback.

This session's exit cards had the same format of the previous session's prompts, but also included an optional open response requesting comments and/or topics on which participants desire additional information. In regards to the prompt "Of the information presented in today's session, how much is useable to you?" 100% of respondents indicated they would use at least some of the information while 81% indicated they would use most or all of it. This is an increase compared to the 62% collected in the previous month's PD session

In response to the prompt "To what extent did you learn more about the impact of an ADHD diagnosis?" 100% of respondents learned more about the impact of an ADHD dx. 94% learned a moderate or great extent more information from the presentation. This exit card percentage would have achieved 100%, but there was a teacher who selected 'slight extent' on her exit card. This participant made a point to write a comment that she loved the presentation, but already knew much of the information due to her son having

ADHD. Regardless, the 94% rating is an increase compared to the 86% collected for this prompt on the previous month's PD session exit cards

The optional open response offered additional insight as eight of sixteen respondents wrote positive feedback in the comments section and six of the sixteen wrote a topic on which they desire additional information. These topics were: strategies for kids with ADHD, websites for appropriate games/activities, redirection strategies, how to address non-medicated ADHD behaviors during a lesson, confidence issues, depression, and improving working memory. Many of the topics will be part of upcoming sessions.

This PD session generated the most individual inquires for further information from participants. Participant 134 discussed food dye and ADHD. As a parent of a child with ADHD, she also wanted to discuss connections between ADHD and other mental health issues like anxiety and depression. She was given additional print and web-based resources.

Participant 145 discussed working memory training games. She was offered two websites with age appropriate interventions she can offer her students' parents at conferences by recommending students replace fifteen minutes of silent reading time for these games two nights each week. This teacher connected to the information presented in this PD session because she thinks she meets the criteria for ADHD. Participant 145 met the presenter a second time to follow up on her previous individual meeting. She relayed that she used the PD information during conferences with parents. Specifically, she referenced the outdated terminology she was using before the PD and her pride at now using the correct term in meetings.

Participant 139 met to further discuss the PD presentation and ask permission to share the information with parents during conferences. As a result of this, a parent from her classroom spoke to the researcher about the importance of giving parents access to the same type of information. Her child has ADHD and she sees characteristics of him in the information. Finally, Participant 142 met with researcher individually to discuss how she was erroneously using ADD instead of ADHD-Inattentive Type because she did not know about the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) diagnostic changes. She is now using the correct term in meetings with parents.

Fifth Session of the PD Program

This PD session was focused on specific academic interventions to use in inclusive classrooms. Information regarding Social Constructivism, Vygotsky's Zone of Proximal Development (ZPD) and metacognition were presented to give background and context for the strategies selected. The impacts of ADHD on school performance due to limitations with working memory, and how this impedes storage and retrieval, were also discussed. Specific academic interventions demonstrated were: Class Wide Peer Tutoring (CWPT), Computer-Assisted Instruction (CAI), and pneumatic devices like TRAP to increase the likelihood of information retention.

The exit card data for this session was positive. In response to the prompt "Of the information presented in today's session, how much is useable to you?" 100% of the respondents indicated they would use at least some of the information. Seventy-eight percent will use most or all of it. In response to the prompt "To what extent did you learn more about academic interventions in inclusive classrooms?" 100% of respondents

indicated they learned more about academic interventions from the PD session. Ninety-four percent learned a moderate or great extent more information from the presentation.

The optional open response offered additional insight with eleven of eighteen respondents who wrote positive feedback in comments section and seven of the eighteen who wrote a topic on which they desire additional information. These topics were: Zone of Proximal Development, use of technology with ADHD students, motivating unmotivated students, and improving retention. Of the 7 requests for additional information, four were about Class Wide Peer Tutoring (CWPT). Participant 137 was so interested in additional information on CWPT that she met with the research individually. She will use it in her classroom, but she needed clarification about how to level the work and partner the students before starting the initiative.

Participant 140 sought additional information about a technology tool demonstrated. Over the next few weeks, she met with this researcher for an additional three hours of individual support, including the researcher modeling this instructional strategy with Participant 140's students. After the additional training, this teacher felt comfortable using the tool without the researcher's scaffolding and it was integrated in to her classroom lessons to positive student response.

Sixth Session of the PD Program

The focus of the sixth session was specific behavioral interventions for use in inclusive classrooms. Before offering strategies, information about how to determine behavior motivation and behavior as a form of communication were presented. Also discussed were common teacher behaviors that may provoke negative student responses. In regards to the strategies shared, social skills training, mindfulness exercises, token

economy system, response cost system, and use of a daily report card (DRC) were offered.

The exit card data from this session indicates positive growth compared to the third session. In response to the prompt “Of the information presented in today’s session, how much is useable to you?” 100% of the respondents indicated they would use at least some of the information. 83% percent will use most or all of it. In response to the prompt “To what extent did you learn more about academic interventions in inclusive classrooms?” 100% of respondents indicated they learned more about academic interventions from the PD session. 100% percent learned a moderate or great extent more information from the presentation. This indicates an increase when compared to the first exit card data collected in October which resulted in 62% and 86% respectively on the same prompts. In the optional open response section of the Exit Card, 50% of participants wrote a topic on which they desire additional information including: mindfulness, social skills training, and using the motivation assessment scale (MAS).

Final Session of the PD Program

During the final session of the PD program, the most pertinent information from each session was reviewed. Teachers were given a list of print and web resources as well as quick reference sheet with specific academic and behavioral strategies highlighted for convenience. Time for questions was offered to participants though the majority of the session was dedicated to the teachers’ individual completion of the post- treatment TSES and Ashton Vignettes. Exit card data was not collected for the final PD session because the researcher collected post-treatment responses on the aforementioned scales.

Study Outcomes

Using Statistical Package for the Social Sciences software (SPSS), a paired-samples t-test was conducted to compare teacher efficacy before the job-embedded PD program and upon completion of the seven month training on both the short form of the TSES and modified Ashton Vignettes.

TSES Results

Results of the paired-sample t-test show the mean efficacy score differs before participating in the PD program ($M = 83.2$, $SD = 8.42$) and after completion of the PD program ($M = 88.7$, $SD = 5.34$) at the .05 level of significance ($t = -3.39$, $df = 20$, $n = 21$, $p < .05$, 95% CI for mean difference -8.93 to -2.13). Results show a statistically significant difference in the mean efficacy ratings on the TSES before and after participation in the PD program. Efficacy appears to increase an average of 5.5 points following completion of the intervention.

Results of the paired-sample t-test show there are statistically significant differences, at the .05 significance level, between the pre and post treatment scores for Instructional Strategies (IS) and Classroom Management (CM) subscales, but not for the Student Engagement (SE) subscale. SE efficacy increased after participation in the PD program, however the increase was not statistically significant. The lack of statistical significance in SE confirms this aspect of efficacy remains a challenge for teachers. This is likely because many factors that influence a student's engagement, such as familial relationship and environmental factors, are beyond a teacher's control. Instructional strategies and classroom management are very much in a teacher's control, which may be why the increase in efficacy was statistically significant for those subscales.

Table 3

Results of paired sample t-test for Teacher Self-Efficacy Scale and Subscales

Outcome	Pre		Post		n	t	df	p
	Treatment		Treatment					
	M	SD	M	SD				
Full Scale-Short Form	83.2	8.42	88.7	5.34	21	-3.39	20	.003*
Instructional Strategies	28.6	4.39	30.6	2.92	21	-2.24	20	.036*
Classroom Management	26.8	2.53	28.9	2.74	21	-3.70	20	.001*
Student Engagement	27.8	3.61	29.2	2.27	21	-2.03	20	.056

* $p < .05$.

When study participants' pre-treatment means for the TSES and its subscales were compared to the publisher's TSES-short form means, the study participants' means were below the published means in every area, except for SE for which the means were identical (Tschannen-Moran & Hoy, 2001). The increase in post-treatment scores resulted in means that exceeded the publisher's means in all areas, thus indicating the success of the job-embedded PD program.

Table 4

Comparison of TSES Publisher Means to Pre- and Post-Treatment TSES Means

	TSES	Pre-	Post-
	Publisher	Treatment	Treatment
	M	M	M
Full Scale Short Form	7.1	6.9	7.4
Instructional Strategies	7.2	6.9	7.3
Classroom Management	7.3	7.2	7.7
Student Engagement	6.7	6.7	7.2

Ashton Vignette Results

Results of the paired-sample t-test on the modified Ashton Vignettes show the mean efficacy score differs before participating in the PD program ($M = 25.1$, $SD = 3.28$) and after completion of the PD program ($M = 27.0$, $SD = 2.32$) at the .05 level of significance ($t = -2.85$, $df = 20$, $n = 21$, $p < .05$, 95% CI for mean difference -3.29 to -.051). Results show a statistically significant difference in the mean efficacy ratings on the Ashton Vignettes before and after participation in the PD program. Efficacy appears to increase an average of 1.9 points following completion of the intervention.

Table 5
Results of paired sample t-test for modified Ashton Vignettes

Outcome	Pre-Treatment		Post-Treatment		n	t	df	p
	M	SD	M	SD				
Ashton Vignettes	25.1	3.28	27.0	2.32	21	-2.85	20	.010*
Instruction	10.3	1.39	10.9	1.19	21	-1.81	20	.086
Discipline	5.2	.889	5.4	.746	21	-1.00	20	.329
Motivation	9.5	1.54	10.7	1.35	21	-3.12	20	.005*

* $p < .05$.

The researcher's attendance log documented which participants sought additional information outside the scope of the PD intervention, the frequency in which it was sought, and the total duration of additional time spent. As such, it was possible to compare results between these participants and those participants who did not seek individual follow-up between monthly PD sessions. There was no obvious pattern evident among the participants who sought additional information, though, coincidentally, two teachers from each participating grade level did so during the duration of the study. When analyzing the individual scores of these participants, it is of note that all who sought additional information and attended every monthly PD session

increased their personal mean score on the post-treatment TSES when compared to the pre-treatment TSES.

Limitations of the Study

There are limitations to this study that must be acknowledged. The research was conducted with a very small sample size of educators (n=21) in a private elementary school setting. The sample also lacked gender and racial diversity. Further research is needed to determine if similar outcomes would result if the participant pool expands to a more heterogeneous sample of K-12 teachers.

Recommendations

Given the gradual increase of students with learning differences in Ohio's chartered nonpublic schools, a reasonable argument can be made that the Ohio Department of Education (ODE) should designate a small percentage of the CEUs required every five years for license renewal be devoted specifically to the topic of differentiation and learning differences. Specifying the topic of PD needed to earn this fraction of CEUs would improve the likelihood that teachers can meet all students' needs in inclusive classrooms by enriching high performing students, remediating for average performing students, and accommodating those student with learning differences.

The suggested policy change is not without precedent. Other licensing boards in the State of Ohio have mandated that a portion of the CEUs required for license renewal are dedicated to a particular area of expertise that board has determined is of critical importance to the field, such as ethics. According to the Ohio Counselor, Social Worker, Marriage and Family Therapist Board: "Thirty clock hours of continuing education are

required for all license renewals every two years from the date of licensure. Three of the thirty hours must cover ethics.” The board also specifies what types of continuing education would meet this ethics requirement:

All licensees or registrants are required to complete three hours of ETHICS. Ethics CEUs may or may not contain the word ethics in the title or description. Some CEUs cover 'ethical subjects' such as: productivity, documentation, termination, HIPPA, boundary concerns, cultural diversity, human trafficking and some types of supervision (OCSWMFT, 2015).

Stakeholders’ resistance to this policy change should be minimal because it does not propose radical changes to the ODE’s budget, the amount of CEUs required for renewal of chartered nonpublic school teachers’ license or even the five year license renewal timeline. This recommended policy amendment would affect only Ohio’s chartered nonpublic schools, a modification which increases overall accountability. This is of paramount importance because private schools do not have the same federal regulations as public schools to hold them accountable. Teachers are already required to complete continuing education to renew their license, therefore it is not an additional burden to require a small percentage of the required CEUs be devoted to the education of those with learning differences.

Using the OCSWMFT as a guide, this small amendment to the CEU policy at the ODE would be a successful solution to bring about the change that is desired. Research shows that evolution is possible via continuous faculty learning (Onorato, 2013). If the ODE mandates a portion of renewal CEUs be dedicated specifically to PD focused on learning differences, it increases the chance that teachers will have the skills they need to

differentiate effectively in inclusive classrooms. Consequently, this policy change may ensure the academic rigor of private schools is maintained while simultaneously meeting the needs of each student (Vantine, 2008).

Conclusion

Professional development is a powerful tool for increasing teachers' sense of efficacy. Preceding research indicates that efficacy in regards to differentiating instruction increases in correlation with the amount of PD hours attended by teachers. PD that advances educators' skills improves their comfort level with modifications and increases the likelihood of differentiation in inclusive classrooms. As a result of effectually designed PD, teachers can improve the academic and behavioral progress of their students' with learning differences by meeting their personal learning needs (Dixon et al., 2014). This study confirms the significance of ongoing job-embedded PD provided in the context of the environment in which the strategies will be implemented and targeted to the specific needs of the attending participants. The positive outcomes of this study warrant further research to determine this PD program's transferability to larger sample sizes with greater diversity in private schools with comparable student demographics.

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Appendix A

Professional Development Needs Assessment Questionnaire

- 1. In your opinion, do you have the professional development (PD) opportunities you need to effectively differentiate instruction for students who vary on the spectrum of ability in your classroom?**

A. Yes
B. No

- 2. Have you participated in any PD specifically related to instructional strategies for differentiating in an inclusive classroom?**

A. Yes
B. No

If you selected yes, please list the PD. _____

If you selected no, please proceed to Question 6.

- 3. In total, approximately how many clock hours of PD on this topic have you earned?**

A. 1-2 hours
B. 3-5 hours
C. 6-8 hours
D. 9-12 hours
E. More than 12 hours

- 4. When was the PD completed?**

A. Within last 6 months
B. Within the last year
C. 1-2 years ago
D. 3-5 years ago
E. More than 5 years ago

- 5. Did you use any information learned during that PD to drive your instruction?**

A. Yes
B. No

If you selected yes, what did you use? _____

How effective was it? _____

If you selected no, why was the information unusable? _____

- 6. Have you participated in any PD specifically related to teaching students with learning differences?**

A. Yes
B. No

If you selected yes, please list the PD: _____

If you selected no, please proceed to Question 10.

- 7. In total, approximately how many clock hours of PD on this topic have you earned?**

A. 1-2 hours	D. 9-12 hours
B. 3-5 hours	E. More than 12 hours
C. 6-8 hours	

8. When was the most recent professional development on this topic completed?
- A. Within last 6 months
 - B. Within the last year
 - C. 1-2 years ago
 - D. 3-5 years ago
 - E. More than 5 years ago
9. Did you use any information learned during that PD to assist in your instruction of students with learning differences?
- A. Yes
 - B. No
- If you selected yes, what did you use? _____
- How effective was it? _____
- If you selected no, why was the information unusable? _____
-
10. How many grade levels of ability* exist in your current classroom?
- A. One
 - B. Two
 - C. Three
 - D. Four or more
 - E. Does not apply to my current role at the school
- *For example: A person who teaches 3rd grade and has students in the same classroom who perform academically at 2nd, 3rd and 4th grade abilities would select C. Three
11. Would you be more likely to participate in PD regarding instructional strategies for the inclusive classroom if it were offered during in-service days?
- A. Yes
 - B. No
12. What frequency of PD for faculty on this topic do you think is necessary to reinforce exemplary 'best practice'?
- A. Monthly
 - B. Quarterly
 - C. Annually
 - D. Bi-Annually
13. Do you currently use standardized testing data (Rigby, Dibel, CPAA, or CTP) to assist with differentiation?
- A. Yes
 - B. No
- If you selected no, please proceed to Question 15.
14. If yes, how frequently?
- A. Never
 - B. Rarely
 - C. Occasionally
 - D. Usually
 - E. Always

15. Do you currently use standardized testing data (Rigby, Dibel, CPAA, or CTP) to guide general instruction?

- A. Yes
- B. No

If you selected no, please proceed to Question 17.

16. If yes, how frequently?

- A. Never
- B. Rarely
- C. Occasionally
- D. Usually
- E. Always

17. Do you lack resources (software programs, classroom materials and/or manipulatives) necessary to understand and serve students with learning differences in inclusive classrooms?

- A. Yes
- B. No

If yes, what specific resources do you lack? _____

18. Overall, how would you rate your effectiveness in meeting the needs of students' with learning differences?

- A. Poor
- B. Fair
- C. Good
- D. Very good
- E. Excellent

19. Overall, how would you rate your colleagues' effectiveness in meeting the needs of students' with learning differences?

- A. Poor
- B. Fair
- C. Good
- D. Very good
- E. Excellent

20. What specific PD topics/instructional strategies would you find most useful in regards to differentiating in an inclusive classroom?

21. Additional comments and/or concerns pertaining to effectively instructing students with learning differences in inclusive classrooms:

Demographic questions:

22. How long have you worked in the field of education?

- A. 1-3 years
- B. 4-6 years
- C. 7-10 years
- D. More than 10 years
- E. More than 20 years

23. How long have you been employed at The Summit Country Day School?

- A. 1-3 years
- B. 4-6 years
- C. 7-10 years
- D. More than 10 years
- E. More than 20 years

24. At what grade level do you currently teach?

- A. First
- B. Second
- C. Third
- D. Fourth
- E. My role spans multiple grade levels

25. Do you have special education certification?

- A. Yes
- B. No

Appendix B

QUESTION	VARIABLE NAME	VARIABLE DEFINITION	CODING SCHEME
Q1	DPD	Enough PD to effectively differentiate for all kids?	Yes- 1 No-2
Q2	Attended DPD	Has attended PD on this differentiation?	Yes- 1 No-2
Q2 A.	DPD Name	Name of DPD course?	Narrative response
Q3	DPD Hours	Clock hours of previous PD on differentiation?	1- 1 to 2 hours 2- 3 to 5 hours 3-6 to 8 hours 4- 9 to 12 hours 5- over 12 hours
Q4	When DPD	When was PD on differentiation completed?	1- within 6 mo 2- within 12 mo 3-1 to 2 yrs. ago 4- 3 to 5 yrs. ago 5- 5+ yrs. ago
Q5	Used DPD	Info from DPD was used to drive instruction?	Yes- 1 No-2
Q5 A.	Used Eff	What info did you use? Was it effective?	Narrative response
Q5 B.	Unused	Why was DPD information not usable?	Narrative response
Q6	LDPD	Has attended PD on teaching kids with learning differences?	Yes- 1 No-2
Q6 A.	LDPD Name	Name of LDPD course?	Narrative response
Q7	LDPD Hours	Clock hours of previous PD on LD?	1- 1 to 2 hours 2- 3 to 5 hours 3- 6 to 8 hours 4- 9 to 12 hours 5- over 12 hours

Q8	When LDPD	When was PD on LD completed?	1- within 6 mo 2- within 12 mo 3-1 to 2 yrs. ago 4- 3 to 5 yrs. ago 5- 5+ yrs. ago
Q9	Used LDPD	Info from LDPD was used to drive instruction?	Yes- 1 No-2
Q9 A.	Used LD Eff	What info did you use? Was it effective?	Narrative response
Q9 B.	Unused LDPD	Why was LDPD information not usable?	Narrative response
Q10	Levels in Class	How many grade levels of ability in current classroom?	1- One, 2- two, 3- three, 4- four, 5- does not apply
Q11	In-service	More likely to participate in PD if on in-service days?	Yes- 1 No-2
Q12	Frequency	What frequency of PD necessary for best practice?	1- Monthly 2- Quarterly 3-Annually 4- Bi-Annually
Q13	Data Diff	Use standardized test data to help differentiate?	Yes- 1 No-2
Q14	Data Freq	How often use test data to help differentiate?	1- Never 2-Rarely 3-Occasionally 4- Usually 5- Always
Q15	Data Guide	Use standardized test data to help guide general instruction?	Yes- 1 No-2
Q16	DataG Freq	How often use test data to help guide general instruction?	1- Never 2-Rarely 3-Occasionally 4- Usually 5- Always
Q17	Resources	Lacks resources necessary to serve LD kids in inclusive class?	Yes- 1 No-2

Q17 A.	Resource Name	What are the resources you are lacking?	Narrative response
Q18	Effective	Rate your effectiveness of meeting needs of students with LD	1- Poor, 2-Fair, 3-Good, 4-Very Good, 5-Excellent
Q19	Coll Eff	Rate effectiveness of colleagues in meeting needs of students with LD	1- Poor, 2-Fair, 3-Good, 4-Very Good, 5-Excellent
Q20	Topics	PD Topics you would find most useful	Narrative response
Q21	Addtl	Respondents wrote in any additional information not covered in survey	Narrative response
Q22	Field	How long have you worked in field of education?	1- 1 to 3 years 2- 4 to 6 years 3- 7 to 10 years 4- 10+ years 5-20+ years
Q23	Summit	How long employed at SCD?	1- 1 to 3 years 2- 4 to 6 years 3- 7 to 10 years 4- 10+ years 5-20+ years
Q24	Grade	Teaching at what grade level?	1- First, 2-Second, 3- Third, 4- Fourth, 5-Multiple/Other
Q25	Cert.	Has Special Ed Certification?	Yes- 1 No-2

JOHNS HOPKINS
UNIVERSITY
Homewood Institutional Review Board
340 N. Charles Street
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<http://web.jhu.edu/irb/>

Michael McCloskey, PhD
Chair

PI Name: Mary Ellen Lewis
Study #: HIRB0000330
Study Name: What effect does job-embedded professional development (PD) for the duration of one school year have on the efficacy of inclusive classroom teachers in a private independent school in Cincinnati, Ohio.
Date of Review: 9/14/2015
Date of Approval: 9/14/2015
Expiration Date: 9/14/2018

Date: September 14, 2015

The above referenced study has been approved.

Review Type:	Exempt
Funding Agency:	Not funded
Grant or Contract Number:	
International Sites:	No
Maximum number of participants:	25
Vulnerable populations:	None
Consent process:	Written Informed Consent Survey/questionnaire consent
Assent Process:	

Please keep in mind that it is your responsibility to inform the HIRB of any adverse consequences to participants that occur in the course of the study, as well as any complaints from participants regarding the research. In conducting this research, you are required to follow the requirements listed in the HIRB Policies and Procedures Manual.

Approved Documents:

Written Consents:
revised informed consent.docx

Study Team Members:
Kendra Thornton

APPROVAL IS GRANTED UNDER THE TERMS OF IRB00008814 FEDERAL-WIDE ASSURANCE OF COMPLIANCE WITH DHS REGULATIONS FOR PROTECTION OF HUMAN RESEARCH SUBJECTS

Appendix D

Approved September 14, 2015 Protocol Number: HIRB00003350



Johns Hopkins University Homewood Institutional Review Board (HIRB)

Informed Consent Form for Lower School Faculty and Staff

Title:	What effect does job-embedded professional development (PD), for the duration of one school year, have on the efficacy of inclusive classroom teachers in a private Independent school in Cincinnati, Ohio.
Principal Investigator:	Dr. Mary Ellen Lewis
Date:	July 16, 2015

PURPOSE OF RESEARCH STUDY:

The purpose of this research study is to determine the effects, if any, of professional development (PD), performed on-site and during normal school hours for the duration of one school year, on the efficacy of inclusive classroom teachers in a private Independent school in Cincinnati, Ohio.

It is anticipated that approximately 25 people will participate in this study.

PROCEDURES:

Participants will be asked to attend ten monthly professional development (PD) sessions for all Lower School faculty at The Summit Country Day School on the first Tuesday of every month which will last approximately 20 minutes. Participants will also be asked to attend monthly follow-up sessions for 30-45 minutes with their grade level teaching teams. The duration of this PD intervention is the nine months that constitute the 2015-16 school year. Teacher surveys will be collected in paper format prior to the start of the PD and upon completion of the PD program.



RISKS/DISCOMFORTS:

There are limited anticipated risks. One possible risk is the potential loss of confidentiality. Efforts to minimize this risk have been made. One effort is the assignment of random numerical codes to be used in place of participants' names. The key to these codes will be known only to the study team members. Additionally, no identifying details will be used in the reports. Lastly, all electronic participant information will be kept under password protection. Hard copies will be in a locked file cabinet inside a locked private office. Beyond this possible risk regarding confidentiality, the risks associated with participation in this study are no greater than those encountered during other professional development opportunities.

BENEFITS:

Potential benefits include increased positive student-teacher interactions within the inclusive classroom, improved teacher efficacy and attainment of effective instructional strategies.

VOLUNTARY PARTICIPATION AND RIGHT TO WITHDRAW:

While your participation in the PD program is required by the Division Director, your participation in this study regarding the PD's effects on efficacy is completely voluntary. Those who choose not participate in the study will not be asked to complete pre-post TSES nor pre-post Ashton Vignettes. If you decide not to participate in the study, there are no penalties.

If you choose to participate, then you may stop your participation at any time without any penalty. If you want to withdraw from the study, please contact Kendra Thornton by phone or email: 871-4700 ext. 274, Thornton_k@summitcds.org.

CONFIDENTIALITY:

Any study records that identify you will be kept confidential to the greatest extent possible by law. The records from your participation may be reviewed by people responsible for making sure that research is done properly, including members of the Johns Hopkins University Homewood Institutional Review Board and officials from government agencies such as the Office for Human Research Protections. All of these people are required to keep your identity confidential. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records.

No identifiable information will be included in any reports of the research published or provided to school administration. Data will not include identifiable information. Only participant numbers will be included on these surveys.

All research data will be kept in a locked office. Electronic data will be password



protected. Pseudonyms will be used for case study information.

COMPENSATION:

You will not receive any payment or other compensation for participating in this study.

IF YOU HAVE QUESTIONS OR CONCERNS:

You may ask questions about this research study now or at any time during the study, by contacting Kendra Thornton at 871-4700 ext 274 or Thornton_k@sumitcds.org.

If you have questions about your rights as a research participant or feel that you have not been treated fairly, please call the Homewood Institutional Review Board at Johns Hopkins University at (410) 516-6580.

SIGNATURES:

Your signature below means that you understand the information in this consent form. Your signature also means that you agree to participate in the study. By signing this consent form, you have not waived any legal rights you otherwise would have as a participant in a research study.

Participant's Name

Participant's Signature

Date

Signature of Person Obtaining Consent
(Investigator or HIRB Approved Designee)

Date

Appendix E

<h3 style="margin: 0;">Teacher Beliefs</h3> <p style="margin: 0;"><i>Directions:</i> Please indicate your opinion about each of the questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A Great Deal" as each represents a degree on the continuum.</p> <p style="margin: 0;">Please respond to each of the questions by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position.</p>		This questionnaire is designed to help us gain a better understanding of the kinds of things that create challenges for teachers. Your answers are confidential.								
	None at all	1	2	3	4	5	6	7	8	9
1. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
2. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
3. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
4. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
5. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
6. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
7. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
8. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
9. To what extent can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
10. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
11. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
12. How well can you implement alternative teaching strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	

FOR OFFICE USE ONLY

Factor 1

Factor 2

Factor 3

9_____

1_____

7_____

10_____

6_____

4_____

5_____

3_____

2_____

12_____

8_____

11_____

Total_____

Total_____

Total_____

Appendix F

Ashton Efficacy Vignettes*

Read each situation carefully. Consider similar situations from your own teaching experiences. Indicate how effective you would be in handling each situation by circling the appropriate number

The student-teacher ratio in your classroom is 18 to 1. You must plan lessons to meet the individual interests and abilities of each student. How effective would you be in designing and implementing activities that match individual interests and abilities of the students in your class?

1	2	3	4	5	6	7
extremely ineffective			moderately effective			extremely effective

A student with a diagnosed learning disability is in your class. Previous teachers describe him as 'extremely hyperactive' and having 'severe reading problems.' How effective would you be in teaching this student?

1	2	3	4	5	6	7
extremely ineffective			moderately effective			extremely effective

You have a student who never hands in homework, is frequently tardy, and often forgets her books and pencil. You know she has the ability to do above-average work, but after speaking to her parents, you feel they don't understand the importance of school achievement. How effective would you be in motivating this student?

1	2	3	4	5	6	7
extremely ineffective			moderately effective			extremely effective

One of your students frequently misbehaves; he is often disruptive and off-task. When you attempt to re-direct him, he becomes defensive and argumentative. Today he starts making silly faces and the class is eager to see how you will react. How effective would you be in responding to this student in a way that demonstrates your expectations for all the students in your class?

1	2	3	4	5	6	7
extremely ineffective			moderately effective			extremely effective

A student in your classroom works diligently and receives additional support, but is still performing below grade level. At her conference, the mother dismisses your concerns by saying she was the same way at that age. How effective would you be in talking to this parent about the effects a parent's expectations can have on a child's school achievement?

1	2	3	4	5	6	7
extremely ineffective			moderately effective			extremely effective

*Adapted from Ashton, P. T., Olejnik, S., Crocker, L. & McAuliffe, M. (1982). *Measurement problems in the study of teachers' sense of efficacy*.

Appendix G



ANITA WOOLFOLK HOY, PH.D.

PROFESSOR
PSYCHOLOGICAL STUDIES IN EDUCATION

Dear Kendra

You have my permission to use the *Teachers' Sense of Efficacy Scale* in your research. A copy the scoring instructions can be found at:

<http://u.osu.edu/hoy.17/research/instruments/>

Best wishes in your work,

Anita Woolfolk Hoy, Ph.D.
Professor Emeritus

Curriculum Vitae

Kendra Meegan Thornton

The Summit Country Day School
2161 Grandin Road
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513-871-4700 ext. 274

Thornton_k@summitcds.org

Biographic Information

- Place of Birth: Attleboro, Massachusetts
- Married to H. Robert Thornton (2006); Daughter of Judith L. Hull

Academic Training

Johns Hopkins University: Doctoral Program

- Ed.D. conferred in August 2016
- The Mind, Brain, and Teaching specialization builds upon research from the fields of psychology, neurology, neuroscience, and education.
- The program is designed to prepare transformational leaders who will apply evidence-based practices to improve educational outcomes and meet the vast challenges of the changing landscape of 21st century education.

Xavier University: Graduate Program

- Master of Arts in Community Counseling

University of Cincinnati: College of Arts and Sciences

- Bachelor of Arts in Political Science/Pre-Law

Licensure

Professional Clinical Counselor (PCC-S)

- Independent license, with Supervisor designation, issued through the State of Ohio Counselor, Social Worker, Marriage and Family Therapist Board

Professional Affiliations

Red Cross Disaster Mental Health Team

- Trained in specialized crisis counseling techniques; travels to natural disaster sites to help victims and relief workers deal with trauma and stress

- Reconnection Workshop Facilitator: fosters positive family connections to expedite successful reintegration of service members into civilian life following return from military deployment

The Power of Education Foundation (PEF): Spring 2014

- PEF is a non-profit organization created to bring quality education to children in Haiti. The K-6 school in Fontamara serves students from neighborhoods that are characterized by extreme poverty, instability and danger.
- Created a teacher toolkit for gender-responsive classrooms and addressed the biases in Haitian government-mandated textbooks to ensure equity of education for female students

Xavier University Community Counseling Program

- Former adjunct faculty member - Practicum Supervisor

Ohio Counseling Association and Greater Cincinnati Counseling Association

Honors/Accomplishments

- Article titled “**Over-scheduled kids: How much is too much?**” selected in 2013 for publication in the Ohio School Counselor Association’s *OSCA Advocate*
- **2013 Early Childhood Education Symposium Presenter:** “Overscheduled kids: How much it too much?”
- **2010 Early Childhood Education Symposium Presenter:** “Bully-proofing Our Children”
- **YPKC Education Committee:** Selected by Mayor Mallory to serve on cabinet that advises development of initiatives to attract and retain more young professionals
- **Chi Sigma Iota Counseling Honor Society:** Xavier University Vice President 2004-2005, ongoing member
- **Greater Cincinnati Counseling Association Essay Contest:** Award Winner